

EXHIBITS 1-4  
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# EXHIBIT 5

INTENTIONALLY  
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# EXHIBIT 6

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**EXHIBIT 7**  
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# EXHIBIT 8

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# EXHIBIT 9

INTENTIONALLY  
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# EXHIBIT 10

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# EXHIBIT 11

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EXHIBITS 12-19  
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# EXHIBIT 20



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EXHIBITS 21-25  
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EXHIBITS 27-45  
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# EXHIBIT 46

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EXHIBITS 47-70  
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# EXHIBIT 71

INTENTIONALLY  
OMITTED

# EXHIBIT 72

INTENTIONALLY  
OMITTED

# EXHIBIT 73

To: All members, warehouse companies and their London agents

Ref: 16/270 : A264 : W091

Classification: Disciplinary

Date: 29 July 2016

Subject: **DISCIPLINARY ACTION: METRO**

## Summary

1. This notice records the settlement of a disciplinary action brought by the London Metal Exchange (the "LME") against Metro International Trade Services LLC ("Metro").

## Settlement

2. Following an investigation by the LME, the Enforcement Committee instituted disciplinary proceedings against Metro in respect of certain alleged breaches of the agreement between the LME and Metro relating to warehousing and its terms and conditions. The LME and Metro agreed a settlement in which Metro agreed to pay US\$10 million (approximately £7.64 million) inclusive of the LME's costs without admitting or denying any of the alleged breaches or the matters that formed part of the investigation or the disciplinary proceedings.
3. The alleged breaches occurred in connection with certain transactions that Metro entered into between September 2010 and April 2013 (the "Transactions"). Metro entered into the Transactions with three different metal owners in respect of metal stored at its Detroit LME warehouse location ("Metro LME Detroit"). The Transactions concerned warrants relating to aluminium. The alleged breaches relate to Metro's negotiation, structuring and undertaking of the Transactions. As part of these Transactions, Metro offered inducements, which were accepted for certain metal stored in Metro LME Detroit by the metal owners, who cancelled their warrants representing such metal. The cancelled metal was physically delivered out of Metro LME Detroit and then such metal or a portion of it was rewarranted at a later date in Metro LME Detroit.
4. In agreeing to the settlement, the LME took account, amongst other things, of the following:
  - (a) The Transactions took place over a two year period;



- (b) The Transactions gave rise to adverse publicity and scrutiny as regards the LME;
  - (c) Metro did not notify the LME prior to entering into the Transactions; and
  - (d) In the view of the LME, the Transactions at Metro LME Detroit impacted the ability of the LME to perform its function effectively.
5. For the above reasons, the LME considers that the payment by Metro is appropriate and justified. The Enforcement Committee has ratified the settlement.

**Tom Hine**

**General Counsel & Head of Enforcement**

cc Board directors

# EXHIBIT 74



An additional amount agreed between buyer and seller over and above an existing benchmark. Also, the price paid by an option holder to an option grantor.

### **price cap**

A method of setting a utility distribution company's rates where a maximum allowable price level is established by regulators, flexibility in individual pricing is allowed, and where efficiency gains can be encouraged and captured by the company

### **primary/secondary**

In metals, primary metal refers to metal produced from mined ore, as opposed to secondary metal, which is produced from secondary sources, mainly scrap

### **prime mover**

The engine, turbine, water wheel or similar machine that drives an electric generator; or, for reporting purposes, a device that converts energy to electricity

### **prompt**

### **proxy hub**

Natural gas and power hub locations where there is little or no forward trading activity. Platts' uses analysis and statistical testing to establish a defensible relationship between a proxy location and one of the editorial or market locations.

### **PRT**

Britain's Petroleum Revenue Tax.

### **pumped-storage hydroelectric plant**

A plant that generates electricity by using water pumped during off-peak periods into an elevated storage reservoir. At peak periods, when additional generating capacity is needed, the water is released from the elevated storage reservoir to turbine generators in a power plant at a lower elevation. A hydroelectric power plant that uses both pumped water and natural stream flow to produce electricity is a Combined Pumped-Storage Hydroelectric Plant.

### **put option**

An option that gives the holder the right (but not the obligation) to sell a specified quantity of the underlying instrument at a fixed price, on or before a specified date. The grantor of the option has the obligation to take delivery of the underlying instrument if the option is exercised.

### **puts/calls ratio**

The ratio of puts to calls in an options market.

### **pygas**

Pyrolysis gasoline: a naphtha-range product with a high aromatic content, used either for gasoline blending or as a feedstock for a BTX extraction unit. Pygas is produced in an ethylene plant which processes butane, naphtha or gasoil.

### **Qua Ibo**

A Nigerian crude oil, with an API of about 35.9.

### **quota**

# EXHIBIT 75

S. Hrg. 113-501

# WALL STREET BANK INVOLVEMENT WITH PHYSICAL COMMODITIES

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## HEARINGS

BEFORE THE

PERMANENT SUBCOMMITTEE ON INVESTIGATIONS  
OF THE

COMMITTEE ON  
HOMELAND SECURITY AND  
GOVERNMENTAL AFFAIRS  
UNITED STATES SENATE  
ONE HUNDRED THIRTEENTH CONGRESS

SECOND SESSION

VOLUME 1 OF 2

NOVEMBER 20 and 21, 2014

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Committee on Homeland Security and Governmental Affairs



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And, third, warehouses should not be allowed to charge rent once a warrant has been canceled, and we believe if you implement that, the incentive for this whole problem would disappear overnight.

So, again, as the world's largest buyer of aluminum and on behalf of Novelis, I thank you for this opportunity and would be very happy to answer questions.

Senator LEVIN. Well, thank you both for coming and for your testimony. It is very powerful testimony.

Mr. Madden, I think you perhaps have already answered this, but I am going to ask a question in a way that perhaps you could expand a bit on what your testimony is. I think as a result of our investigation and Report probably you have learned for the first time about the participants and circumstances behind some of the warrant cancellations at the Metro warehouses in Detroit since 2010 that contributed to the hugely longer queue, including some of those merry-go-round trades, the large cancellations by Goldman and JPMorgan as well as Metro's premium-sharing arrangements. And on a practical level, you have given us some of the impact already on your customers and on you.

Were you surprised when you heard about these practices?

Mr. MADDEN. I was kind of surprised, but not entirely. I would say it equated with our worst fears of what could be happening, because this behavior of massive cancellations is unprecedented. And you asked that question earlier. I know of no occurrence in history at the aluminum—since the LME started trading in 1978, which is when I started working in the industry, I know of no precedent. So, yes, this surprised—the actual activity surprised us. But am I completely—something strange was going on, but it was very opaque to us because all these transactions happened in a non-reported way.

Senator LEVIN. Well, were you horrified by what you saw?

Mr. MADDEN. Well, it makes us look naive; being the biggest buyer in the world, we did not know this was going on. But we do believe that the activity was definitely prolonging the queue, and we do believe absolutely that there is a direct linkage between the premium and the queue, and, therefore, we think this issue—and this is what we have been kind of talking publicly about for the last 3½ years, that the issue around Detroit—and now it has moved to Vlissingen in Europe as well—is pushing up premiums to levels never seen in history.

Senator LEVIN. Now, Mr. Vazquez, if you can tell us in your judgment the relationship—two relationships: First, between the length of the queue in a warehouse and the premium, what is the relationship between the premium and the so-called all-in price? Those two things, first between the queue and the premium, and then between the length of the queue and the overall all-in price. Sometimes I call it "market price." I guess it is somewhat different from market price, but for most intents and purposes, market price.

Mr. VAZQUEZ. Our work, our mathematical work, our empirical tests are really clear to indicate that queue length determines or impacts greatly the premium. And not only there is a strong correlation between the length of the queue and the premium, but there is causation, meaning mathematically, econometrically, the queue causes the premium. And the reason for that is that—

Senator LEVIN. When you say "causes"—

Mr. VAZQUEZ. Yes, causes.

Senator LEVIN. It is a part of the premium.

Mr. VAZQUEZ. Yes.

Senator LEVIN. Or has a direct relationship to the length?

Mr. VAZQUEZ. Yes. It is both, yes. Not only there is a correlation, because sometimes there are two variables that may be correlated, but they are not really—one does not cause the other. But in the case of the queue and in the case of the premium, not only there is correlation but there is causation, meaning—

Senator LEVIN. Why is that?

Mr. VAZQUEZ. Because the premium is the full logistical cost of sourcing metal. When a consumer or a buyer looks to buy metal, they have three options: They can go to the trader, they can go to the smelter, or they can go to the LME. How much it costs to move the metal all the way from the smelter to the consumer plant is an important factor behind the premium.

The full logistical cost of moving metal from the trader's warehouse to the consumer's warehouse also impacts the premium. And the full cost of buying a warrant, canceling the warrant, paying storage fees, paying the FOT charge, which means how much you pay to load out the metal and put it in a truck, and then from there to your own warehouse, to the consumer warehouse, is another important logistical cost.

So the combination of these logistical costs determine the premium. So the backup that the consumer has is the LME. That is the market of last resort. If the trader or the producer is charging too much in terms of premium, the consumer can go to the LME and source the metal himself, paying storage. But if the backup has a prohibitive cost, if the queue is so long that you have to pay, like today, 665 days of rent, then the trader and the producer know that your option is not really an option, and it is too expensive. So the point of reference, the point of negotiation goes up.

In the past, when queues were less than 2 weeks or were less than 30 days, the consumer, whenever they were negotiating with the trader and the producer, said, "You want to charge me so much for premium? Forget it. I can go to the warehouse and source it myself. And the equivalent cost is such that it is cheaper than what you are charging me."

So the consumer has always used the LME as a leverage, as a point of reference when negotiating with the producer and the trader. But if you take that away, then the trader and the producer can charge at least what is the cost for the consumer to load out the metal from the LME warehouse into his plant. So that is the backup that the consumer has.

Senator LEVIN. Goldman is arguing that when the premium goes up, the LME price goes down because the all-in price will always be about the same. That is their argument. If you buy it—

Mr. VAZQUEZ. Senator, evidence tells us the opposite. Why the opposite? There is no clear, robust empirical data that tells us that the LME moves inversely to the premium. They move in tandem. There is no—the LME price impacts the all-in price. The premium impacts the all-in price. There is no objective data, analysis, that

tells us that the LME falls when the premium goes up. Quite the opposite.

Senator LEVIN. Before I turn it over to Senator McCain, do you agree with that, Mr. Madden?

Mr. MADDEN. I do.

Senator LEVIN. That the argument of Goldman that when the premium goes up, the LME price goes down because the all-in price always stays about the same—you just do not buy that?

Mr. MADDEN. No, I do not. I can think of a parallel in history, so the last time we saw stocks at the levels we have today was in the early 1990's after the collapse of the Soviet Union, and lots of metal flooded out of Russia into the United States, and so on. At that point the LME price was down at \$1,070 a ton at the low point. And the Midwest Premium was between 0 and half a cent. So when the demand is very weak or there is so much oversupply, you would expect both the premium and the underlying price to be weak. What we have today is, as I said, the highest stocks in history, and, therefore, one would expect the fundamentals are not great. But we have the highest premiums ever in history. There is no parallel, there is no time ever in the history of this market that we have seen a Midwest Premium of 23 cents, and historically it ranged from 0 to 7 cents a pound. So this is a whole new phenomenon that we are trying to get to grips with.

Senator LEVIN. Thank you. Senator McCain.

Senator MCCAIN. So as a followup, it probably would not be possible, could it, unless one company or corporation had 85—as Goldman Sachs does, controlled 85 percent of the LME aluminum in the United States. I do not see how you can draw any other conclusion. Is that yours?

Mr. VAZQUEZ. Yes, it is. See, it is really difficult to move the LME price, to manipulate the LME. But the volumes that move the premium, 100,000 tons under current conditions can move the premium. It is much easier to move the premium than to move the LME price. And if you have 85 percent of the volume that is in North America within LME warehouses, well, that is an interesting data point to observe.

Senator MCCAIN. Something that really is startling about this to me that has really made an impression during the course of this hearing: Why would anyone that is interested in service to the customer and a product at the lowest price, why would that organization, in this case Metro, pay its clients to move metal from one Metro warehouse into another warehouse, which sometimes is a mile away? What could possibly logically, if you are trying to do any—impose any efficiencies, why would you want to pay people so that you can move it from one warehouse to another? Please, maybe for the record, you can explain that practice, which I think is called “merry-go-round deals.” Maybe you, Mr. Madden?

Mr. MADDEN. Yes, I mean, I read about this first in David Kocieniewski's article in the *New York Times*, and I honestly did not really understand what he was saying at that point. And now I see it in black and white, I understand. And I can only assume that if it was my business, I want to keep hold of that metal in any way I can because it is generating rent. But I also have to satisfy the LME obligation.

Now, this is my theory because I do not actually know exactly what the driver is, but my theory would be if I make metal move out at the LME rate but it does not really move out, it just goes somewhere else, and then ultimately gets re-warranted, I have retained control of that pool of metal and, therefore, I can continue to count on rent provided there is a queue. And so if I can then—

Senator MCCAIN. So you are going to make—even though you are paying your client to move their product from one warehouse to another, you are still going to make more money that would be more than the amount you are paying your client. And so ultimately all that cost is borne by the consumer sooner or later.

Do you want to add to that, Mr. Vazquez?

Mr. VAZQUEZ. Yes, the reason why there is an incentive for a warehousing company to make sure that the metal comes back to the LME warehouse that they operate is because they can make more money off of it. And, of course, they want to keep the critical mass of metal because having the critical mass of metal keeps this business model going on.

Senator MCCAIN. That is why you want 85 percent of the supply. If that was not the case, then obviously this practice would be non-productive.

Now, again for the record—and let us assume that there are some complexities here—there is now a 670-day waiting time from the time that a consumer orders the product, the aluminum, to the time that it would get to that consumer. Is that correct?

Mr. VAZQUEZ. Correct.

Senator MCCAIN. One more time, explain how that has ballooned from—what was it, 30 days? I think something like that. Explain to me how that happens for the record, again. I apologize if it is repetitious, but it is staggering to think that 600 days would elapse between the time you order something that is in a warehouse in the United States of America and it gets to the consumer or the user.

Mr. VAZQUEZ. Well, the size of the cancellations are completely unprecedented. And, the size of the exit door is too small compared to the size of the volume of the metal in the warehouse. That is the second reason. And the third reason, in my opinion, is that the system was not designed to make sure that no critical mass of metal could be concentrated in one warehousing company without having the proper exit door if the time for need for that metal came. So that is my reflection. That is my opinion. The exit door was not appropriate, the system was not appropriate to make sure this did not happen.

Senator MCCAIN. And, obviously, the LME does not seem to feel it necessary to take some action, apparently.

Mr. Madden, do you want to add anything to that?

Mr. MADDEN. Yes, I would be happy to. So we have talked to the LME a lot. I am a member of the LME Aluminum Committee, and the Physical Market Committee which was introduced very recently when they changed the rules, and I see, too, a shift change in the LME leadership. So the business was acquired at the end of 2013—2012, excuse me, by the Hong Kong Exchange. Prior to that, it was owned by—and I think it was mentioned earlier. It was owned by the members. So, for instance, some of the investment

# EXHIBIT 76



*United States Senate*

***PERMANENT SUBCOMMITTEE ON INVESTIGATIONS***

***Committee on Homeland Security and Governmental Affairs***

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*Carl Levin, Chairman*

*John McCain, Ranking Minority Member*

**WALL STREET BANK  
INVOLVEMENT WITH  
PHYSICAL COMMODITIES**

**MAJORITY AND MINORITY  
STAFF REPORT**

**PERMANENT SUBCOMMITTEE  
ON INVESTIGATIONS  
UNITED STATES SENATE**



**RELEASED IN CONJUNCTION WITH THE  
PERMANENT SUBCOMMITTEE ON INVESTIGATIONS  
NOVEMBER 20 AND 21, 2014 HEARING**

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**Chairman**

**SENATOR JOHN McCAIN**  
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## **D. Goldman Involvement with Aluminum**

After it became a bank holding company in 2008, in addition to expanding its physical commodity activities involving uranium and coal, Goldman substantially increased its involvement with aluminum. In 2010, it purchased Metro International Trade Services LLC (Metro), owner of a global network of warehouses that store actual metal, including aluminum. Metro's warehouses are approved by the London Metal Exchange (LME) to store metals traded on its exchange. Under Goldman's ownership, Metro implemented practices to aggressively attract and retain aluminum in its Detroit warehouses.

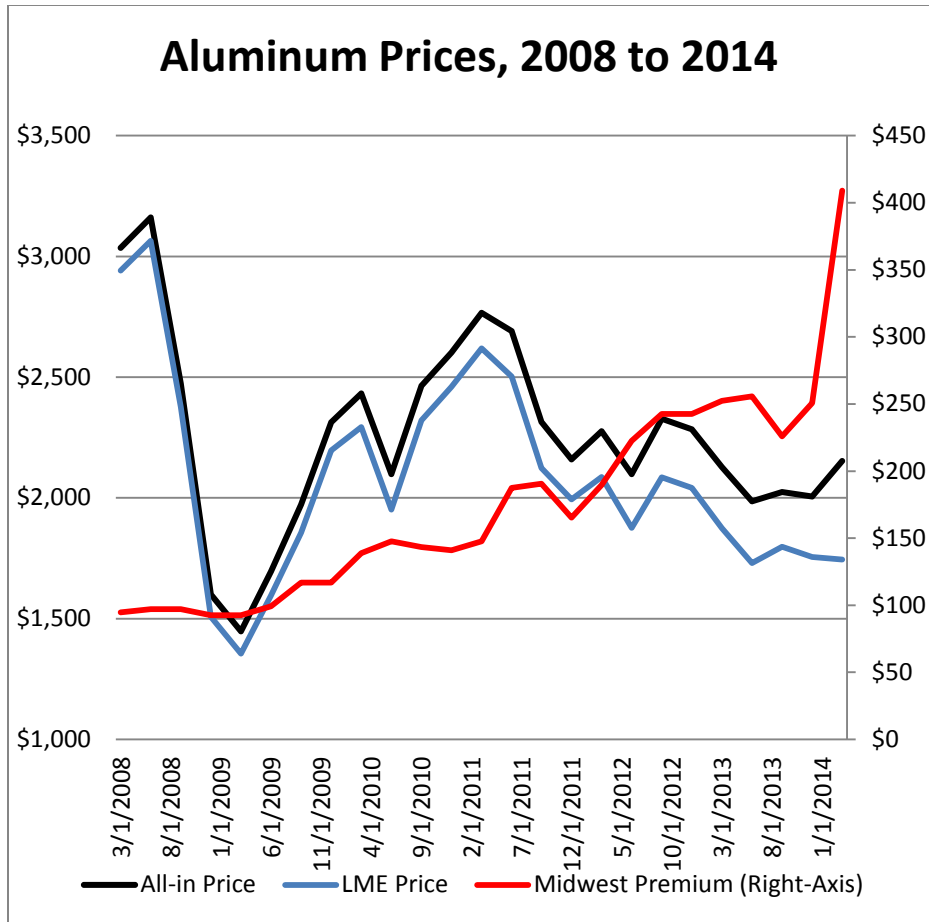
Over the next few years, Metro loaded aluminum into its Detroit warehouses at an historic rate, building a virtual monopoly of the U.S. LME aluminum storage market. Metro attracted the aluminum in part by paying "freight incentives" to metal owners to store their metal in the Detroit warehouses. In addition, Metro entered into "merry-go-round" transactions with existing warehouse clients in which it paid them millions of dollars in incentives to join or stay in the exit line, known as the "queue," to load out metal, move the metal from one Metro warehouse into another, and then place it back on warrant. Those merry-go-round transactions lengthened the metal load out queue to exit the Metro warehouse system, blocked the exits for other metal owners seeking to leave the system, and helped ensure Metro maintained its aluminum stockpiles while earning a steady income. Metro's queue grew to an unprecedented length, forcing metal owners to wait, at times, up to nearly two years to get their metal out of storage in Detroit.

As the Detroit warehouse queue grew, so did the Midwest aluminum premium, a component of the aluminum price. Higher Midwest Premium prices increased aluminum costs for U.S. aluminum buyers and weakened their ability to hedge their price risks, affecting aluminum users in the defense, transportation, beverage, and construction sectors. Some industrial users of aluminum charged that the dysfunctional aluminum market inflated overall aluminum costs by \$3 billion. While long queues and increasing Midwest Premium prices were hurting aluminum users, the LME has said that the emergence of increasing premiums "convey[ed] an advantage to the expertise of merchants and brokers, who have built-up strong modelling capabilities around premiums and queues."<sup>1010</sup>

Goldman, through its control of the Metro Board of Directors, approved Metro practices that lengthened Metro's queue, at the same time Goldman was ramping up its own aluminum trading operations. Between 2010 and 2013, Goldman built up its physical aluminum stockpile from less than \$100 million in 2009, to more than \$3 billion in aluminum in 2012. At one point in 2012, Goldman owned about 1.5 million metric tons of aluminum, worth \$3.2 billion, more than 25% of annual North American aluminum consumption at the time. Goldman also engaged in massive aluminum transactions, acquiring hundreds of thousands of metric tons of metal in one series of transactions in 2012, and more than 1 million metric tons in another series of transactions later in the year. That same year, Goldman made large cancellations of warrants

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<sup>1010</sup> 11/2013 "Summary Public Report of the LME Warehousing Consultation," prepared by LME, at 29, <https://www.lme.com/~media/Files/Warehousing/Warehouse%20consultation/Public%20Report%20of%20the%20LME%20Warehousing%20Consultation.pdf>.



Source: Prepared by Subcommittee using data provided by Novelis.

See undated "LME Stocks 2014-05-06," prepared by Novelis, PSI-Novelis-01-000001.

For many years, the Midwest Premium was a relatively small portion of the all-in price for physical aluminum. In recent years, however, it has grown more volatile and has dramatically increased in both real dollar terms and as a proportion of the all-in price. That development has had an adverse impact on many industrial aluminum users who believe that higher Midwest Premium prices decrease their ability to hedge price swings and lead to higher all-in prices for aluminum.<sup>1029</sup>

**Aluminum Trading on the London Metal Exchange.** The London Metal Exchange (LME) is the dominant market in the world for trading aluminum, copper, and other base metals. The exchange is physically located in London and falls within the jurisdiction of the United Kingdom's Financial Conduct Authority (FCA). The LME is empowered by the FCA to act as the primary regulator for its market.<sup>1030</sup>

<sup>1029</sup> See, e.g., Subcommittee briefing by Novelis, (11/3/2014).

<sup>1030</sup> See undated "Regulation," LME website, <http://www.lme.com/regulation/>.

located and how long it may take to remove the aluminum from the warehouse. For example, warrants for aluminum held in a warehouse with a long queue may be worth less than warrants for aluminum held in a warehouse with no queue. Relative values of warrants for aluminum held in different locations may change by the day as warehouse queues lengthen or shorten.

Because OTC trades are not subject to the same reporting as those that occur on regulated exchanges, it is difficult to determine the overall size of the OTC aluminum market and the types of financial instruments that are most common.

**Relationship Between Warehouse Queues and Aluminum Prices.** A critical factor affecting aluminum trading in recent years has been an unprecedented growth in the size of physical aluminum inventories at LME-approved warehouses, as industrial demand for the metal plummeted during the financial crisis and metal owners sought to sell or store their excess stocks.<sup>1056</sup> The increase in aluminum inventory was particularly dramatic at Metro's Detroit warehouses. At the same time the physical aluminum inventories increased, warrant holders with metal in the Metro Detroit warehouses experienced increasingly long queues before they could remove their aluminum from the warehouses. Those queues, over time, have been highly correlated with the increases in the Midwest Premium prices.

At the end of February 2010, just after Goldman acquired Metro, the Midwest Premium was approximately \$134 per metric ton.<sup>1057</sup> It has since steadily climbed to over \$400.<sup>1058</sup> In dollar terms, the Midwest premium climbed over 300% in just a few years. Over the same period, the queue went from about 40 days to over 600 days.<sup>1059</sup>

As depicted in the chart below, the increase in the Midwest Premium has been highly correlated with the growth of the queue at Metro's Detroit warehouses.

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<sup>1056</sup> See 11/2013 "Summary Public Report of the LME Warehousing Consultation," prepared by LME, at 20, <https://www.lme.com/~media/Files/Warehousing/Warehouse%20consultation/Public%20Report%20of%20the%20LME%20Warehousing%20Consultation.pdf>.

<sup>1057</sup> See undated "LME Stocks 2014-05-06," prepared by Novelis, PSI-Novelis-01-000001.

<sup>1058</sup> Id.

<sup>1059</sup> See undated "Harbor's Estimated Aluminum Load-Out Waiting Time in LME Detroit Warehouses, prepared by Harbor Aluminum, PSI-HarborAlum-01-000001.

Prominent aluminum analysts agree with that view. Jorge Vazquez of Harbor Aluminum Intelligence, a leading industry analyst, has said that the emergence of long queues led directly to higher premiums, commenting that warehouse practices were “being used as a platform to inorganically inflate aluminum premiums at the expense of the aluminum consumer and at the benefit of some warehouses, banks and trading companies.”<sup>1063</sup>

In contrast, the LME and Goldman contend that longer queues have not affected the all-in price for aluminum. Although both the LME and Goldman concede that the queue has affected premium prices and the relative proportions of the all-in price attributable to the premium price versus the LME price, they assert that the effect of the longer queue has been to drive the LME portion down and the premium portion up, leaving the all-in price substantially unchanged.<sup>1064</sup> That analysis is a minority view, according to briefings provided to the Subcommittee by numerous aluminum market participants and experts. Alcoa, the largest U.S. aluminum producer, told the Subcommittee, for example, that the LME and premium prices are not inversely related, but move independently of one another.<sup>1065</sup> In a recent filing with the SEC, Alcoa wrote that the LME price and the aluminum premium each “has its own drivers of variability.”<sup>1066</sup> Mr. Vazquez, the aluminum analyst, agreed with that view, indicating to the Subcommittee that “there has been no empirical study or evidence or modeling that suggests changes in LME prices and the Midwest Premium are inversely related,” as the LME and Goldman have suggested.<sup>1067</sup> In fact, the LME and Midwest Premium prices can and often have moved in the same direction.

The Subcommittee’s investigation found that, while there was disagreement about the impact of the queue on the level of the all-in aluminum price, there was broad consensus that the queue had affected Midwest Premium prices. The investigation also found that the price impacts of the queue had created problems for aluminum users like beverage can producers and automobile manufacturers who actually use aluminum, because the increasing difference between the all-in price and the LME futures price made hedging price risk through the LME market increasingly ineffective.<sup>1068</sup> A number of commercial users told the Subcommittee that the lack of effective hedges damages planning and impacts revenues.<sup>1069</sup>

Protection, S. Hrg. 113-67 (7/23/2013), testimony of Tim Weiner, Global Risk Manager, Commodities/Metals, MillerCoors LLC, at 9, <http://www.gpo.gov/fdsys/pkg/CHRG-113shrg82568/html/CHRG-113shrg82568.htm>.

<sup>1063</sup> “Aluminum Premiums To Fall After LME Warehouse Plan?” Metal Miner, (11/8/2013), <http://agmetalmminer.com/2013/11/08/aluminum-premium-to-fall-after-lme-warehouse-plan/>. ; Subcommittee briefing by Jorge Vazquez (9/30/2014).

<sup>1064</sup> See 10/31/2013 “The Economic Role of a Warehouse Exchange” prepared by Goldman Sachs Commodity Research (The development of the queues has not affected the total ‘physical’ price for aluminum), GSPSICOMMODS00047511 - 545; 11/2013 “Summary Public Report of the LME Warehousing Consultation,” prepared by LME, at 24, <https://www.lme.com/~media/Files/Warehousing/Warehouse%20consultation/Public%20Report%20of%20the%20LME%20Warehousing%20Consultation.pdf> (“[L]ong queues reduce the value of warrants, and . . . it was these lower-value warrants which were being used to settle LME contracts and set LME price.”).

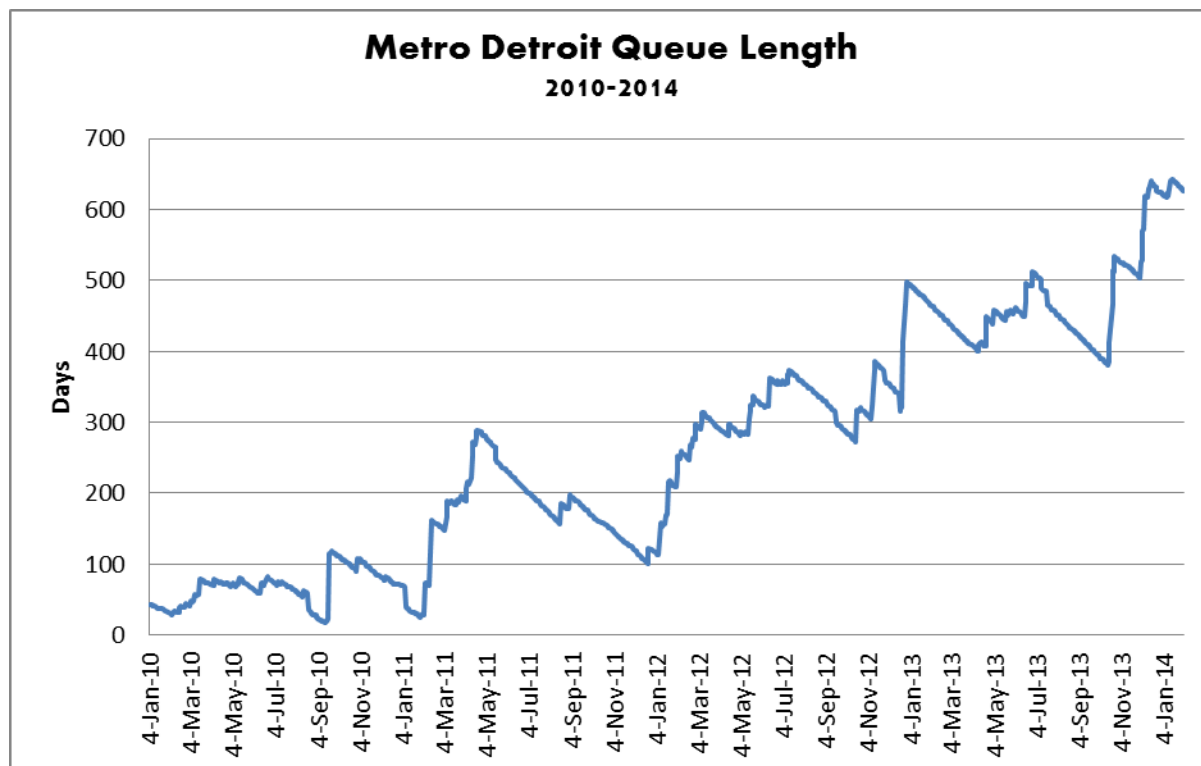
<sup>1065</sup> Subcommittee briefing by Alcoa (8/5/2014);

<sup>1066</sup> 3/31/2014 Alcoa, Inc. Form 10-Q for the quarterly period ending March 31, 2014, at 45, <http://www.sec.gov/Archives/edgar/data/4281/000119312514157120/d701633d10q.htm>.

<sup>1067</sup> Subcommittee briefing by Jorge Vazquez (9/30/2014).

<sup>1068</sup> This was, in fact, the explicit reasoning used by the CME when it introduced its Aluminum MW U.S. Transaction Premium contract in 2012. Undated, “FAQ: Aluminum MW US Transaction Premium Platts (25MT)

Beginning in 2010, as reflected in the graph below, Metro's Detroit warehouses developed a queue which, overall, grew longer and longer each year.<sup>1143</sup> In March 2010, just after Goldman purchased Metro, the Detroit warehouses had a queue that was slightly more than 40 days.<sup>1144</sup> A year later, in March 2011, the Detroit queue had more than tripled, exceeding 150 days.<sup>1145</sup> By March 2012, it had doubled again, to nearly 300 days.<sup>1146</sup> The queue passed 500 days in October 2013, and 600 days two months later.<sup>1147</sup> In May 2014, the queue to get aluminum out of Metro's Detroit warehouses reached a stunning 674 days.<sup>1148</sup> That meant an aluminum owner seeking to remove its aluminum from the Detroit warehouses would have to wait in line – paying rent – for almost two years.



Source: Prepared by the Subcommittee using information provided by Harbor Aluminum. See undated "HARBOR's estimated aluminum load-out waiting time in LME Detroit Warehouses vs HARBOR's MW Transactional Premium," prepared by Harbor Aluminum, PSI-HarborAluminum-03-000004.

Large aluminum users have denounced the Detroit queue as unreasonable and damaging to aluminum markets, and have called the LME's current warehousing system "dysfunctional and prone to manipulation."<sup>1149</sup> In addition, as described above, the increases in the Metro

<sup>1143</sup> The queue length records were compiled by Harbor Aluminum using LME records, and produced to the Subcommittee. See "HARBOR's estimated aluminum load-out waiting time in LME Detroit Warehouses," prepared by Harbor Aluminum, PSI-HarborAlum-01-000001.

<sup>1144</sup> Id.

<sup>1145</sup> Id.

<sup>1146</sup> Id.

<sup>1147</sup> Id.

<sup>1148</sup> Id.

<sup>1149</sup> 9/9/2013 letter from Aluminum Users Group to LME, "13/208:A201;W076," PSI-AlumUsersGroup-01-000002, at 004.

Detroit queue were highly correlated with increases in the aluminum Midwest Premium over the same time period which, in turn, became a growing component of the all-in price of aluminum. Some industrial aluminum users have charged that the longer queues led to higher Midwest Premium prices, costing their companies millions of dollars.<sup>1150</sup> More broadly, one aluminum user, MillerCoors, estimated that the dysfunctional aluminum market had imposed an estimated “additional \$3 billion expense on companies that purchase aluminum.”<sup>1151</sup> While long queues and increasing Midwest Premium prices were hurting aluminum users, the LME has said that the emergence of increasing premiums “convey[ed] an advantage to the expertise of merchants and brokers, who have built-up strong modelling capabilities around premiums and queues.”<sup>1152</sup> In addition, as described earlier, at the same time Goldman was approving Metro practices that lengthened its queue, it was ramping up its own aluminum trading operations.

**Driving the Queue Length.** The Subcommittee investigation found that a significant contributor to the Detroit queue length was a number of large warrant cancellations by a small group of financial institutions, including Deutsche Bank; Red Kite, a London hedge fund; Glencore, a commodities trading firm based in Switzerland; JPMorgan; and Goldman. Deutsche Bank, Red Kite, and Glencore were all involved in “merry-go-round” deals in which aluminum was loaded out of one Metro warehouse and loaded into another. The cancellations involving JPMorgan and Goldman involved metal that they held for themselves. Each of the five financial firms cancelled 100,000 metric tons or more, an amount that would have been unprecedented for Metro’s Detroit warehouses just a few years earlier.

**Merry-Go-Round Deals.** Metro’s merry-go-round deals took place in 2010, 2012, and 2013. According to a Metro executive, the deals began in the summer of 2010, just a few months after Goldman acquired Metro, when Metro became concerned that owners of aluminum in its warehouses were removing the metal from its warehouses and storing it elsewhere, leading to a loss of revenue.<sup>1153</sup> In an effort to curb that loss, Metro executives and the Metro Board of Directors, composed exclusively of Goldman employees, made a strategic decision to – for the first time – “market” Metro incentives to metal owners that already had metal stored in Metro’s warehouses.<sup>1154</sup>

Ultimately, those efforts led to at least six deals with three customers: Deutsche Bank, Red Kite, and Glencore.<sup>1155</sup> Although each deal involved millions of dollars, none was

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<sup>1150</sup> “Examining Financial Holding Companies: Should Banks Control Power Plants, Warehouses and Oil Refineries?” hearing before the U.S. Senate Banking Subcommittee on Financial Institutions and Consumer Protection, S. Hrg. 113-67 (7/23/2013), testimony of Tim Weiner, Global Risk Manager, Commodities/Metals, MillerCoors LLC, at 9, <http://www.gpo.gov/fdsys/pkg/CHRG-113shrg82568/html/CHRG-113shrg82568.htm>.

<sup>1151</sup> *Id.*, prepared testimony of Tim Weiner, Global Risk Manager, Commodities/Metals, MillerCoors LLC, at 4.

<sup>1152</sup> 11/2013 “Summary Public Report of the LME Warehousing Consultation,” prepared by LME, at 29, <https://www.lme.com/~media/Files/Warehousing/Warehouse%20consultation/Public%20Report%20of%20the%20LME%20Warehousing%20Consultation.pdf>.

<sup>1153</sup> Subcommittee interview of Christopher Wibbelman (10/6/2014).

<sup>1154</sup> *Id.*

<sup>1155</sup> Subcommittee interviews of Jacques Gabillon, (10/14/2014) and Christopher Wibbelman (10/24/2014). See also 10/22/2014 letter from Goldman legal counsel to Subcommittee, PSI-GoldmanSachs-22-000001.



formalized in a signed contract.<sup>1156</sup> Instead, details were spelled out in an unsigned contract, emails, and invoices.<sup>1157</sup>

In each deal, Metro provided financial incentives to the owner of the aluminum stored in its warehouses to: (1) wait in the queue; (2) upon reaching the head of the queue, load out its metal from a Metro warehouse; (3) deliver the metal to another nearby Metro warehouse; and (4) warrant the metal while in the second Metro warehouse. Each deal led to aluminum being loaded out of one Metro warehouse in Detroit and loaded right back into another, a practice that one Metro forklift operator later told the New York Times amounted to a “merry-go-round of metal.”<sup>1158</sup>

Because Metro used a single exit queue for all of its Detroit warehouses combined, when a warehouse client in a merry-go-round deal got to the head of the queue and started loading out metal, that client essentially blocked the exits for any other metal owner seeking to leave the Metro Detroit warehouse system. In addition, instead of 1,500 or 3,000 metric tons of aluminum leaving the Metro warehouse system each day as envisioned by the LME’s daily minimum load out requirement, in the merry-go-round deals, the aluminum that left the Detroit warehouses nearly all came right back into the Metro warehouse system.<sup>1159</sup> The net impact for Metro was that, each day in which the front of the queue was occupied by a metal owner executing a merry-go-round deal, its warehouses lost virtually no metal. At the same time, the merry-go-round deals made money for Metro, not only by preventing the loss of metal, but also by helping to lengthen the Detroit queue, extending the period during which other metal owners had to pay rent to Metro.

Increases in the Detroit queue length were highly correlated with increases in the Midwest Premium, which ultimately affected the entire aluminum market. Goldman, through its employees on the Metro Board of Directors, reviewed and approved each of the merry-go-round deals that lengthened the queue, and throughout the years in which the merry-go-round transactions took place, Goldman actively traded aluminum.

### **(i) Deutsche Bank Merry-Go-Round Deal**

Goldman acquired Metro in February 2010, and Metro conducted its first merry-go-round deal in September 2010, with DB Energy Trading, a subsidiary of Deutsche Bank.<sup>1160</sup> It involved 100,000 metric tons of aluminum, most of which was loaded out of one Metro warehouse and immediately loaded into another. The transaction was not suggested by Deutsche Bank, but by Metro personnel, and reviewed and approved by Metro senior executives and the

<sup>1156</sup> Subcommittee interview of Christopher Wibbelman (10/6/2014).

<sup>1157</sup> See, e.g., Glencore Ltd. invoice to Metro (6/21/2013), GSPSICOMMODS00046873; Red Kite Master Fund Ltd. invoice to Metro (11/13/2012), GSPSICOMMODS00046876.

<sup>1158</sup> Subcommittee interview of Jacques Gabillon (10/14/2014); “A Shuffle of Aluminum, but to Banks, Pure Gold,” New York Times, David Kocieniewski, [http://www.nytimes.com/2013/07/21/business/a-shuffle-of-aluminum-but-to-banks-pure-gold.html?pagewanted=all&\\_r=1&](http://www.nytimes.com/2013/07/21/business/a-shuffle-of-aluminum-but-to-banks-pure-gold.html?pagewanted=all&_r=1&).

<sup>1159</sup> The vast majority of the metal that came back into a Metro warehouse was ultimately placed back on warrant, while, as of earlier this year, a fraction of it had not been placed on warrant.

<sup>1160</sup> 9/15/2010 Warrant Finance Agreement between DB Energy Trading LLC and Metro, GSPSICOMMODS000047438.

Metro Board of Directors' Commercial Decisions Subcommittee, composed exclusively of Goldman employees.<sup>1161</sup>

According to Deutsche Bank, the 100,000 metric tons of aluminum at issue was held by Deutsche Bank for its own account as part of a so-called "cash and carry" trade.<sup>1162</sup> Consistent with its general practice, Deutsche Bank entered into negotiations with Metro's agent seeking discounted rent.<sup>1163</sup> According to Deutsche Bank, Metro declined to provide the discounted rent directly, but suggested instead that Deutsche Bank move the metal to a cheaper off-warrant storage site at other Metro warehouses.<sup>1164</sup> According to Deutsche Bank, Metro proposed that Deutsche Bank cancel the warrants for the aluminum stored in the LME-approved warehouses, wait in the queue to load out the metal, transport the aluminum to other Metro warehouses, and after a period of less expensive or free rent, re-warrant the metal.<sup>1165</sup>

While both Deutsche Bank and Metro have acknowledged to the Subcommittee that the proposed transaction did, in fact, occur, no formal written contract was signed by both parties. Instead, the terms of the agreement were spelled out in a contract that was signed by Deutsche Bank employees,<sup>1166</sup> but which Metro CEO Christopher Wibbelman told the Subcommittee was never signed by Metro.<sup>1167</sup> The Subcommittee understands that an agreement was nevertheless reached generally in line with the terms of the contract signed by Deutsche Bank.

The agreement involved Deutsche Bank cancelling warrants associated with 100,000 metric tons of aluminum stored in Metro's Detroit warehouses, requesting "the maximum number of [load-out] Slots" in the queue, loading the metal out of the warehouses, and transporting the metal to other Metro warehouses in Detroit.<sup>1168</sup> By requesting the "maximum number of Slots," Deutsche Bank essentially ensured that the aluminum in the deal would fill Metro's load-out requirement from the day the first lot of Deutsche Bank metal reached the front of the queue until all of its aluminum was loaded out, which would take more than 65 business days at the minimum load out rate of, then, 1,500 metric tons per day. The agreement also

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<sup>1161</sup> Subcommittee interview of Christopher Wibbelman (10/6/2014).

<sup>1162</sup> Subcommittee briefing by Deutsche Bank legal counsel (10/22/2014). A "cash and carry" trade occurs when a trader buys physical metal, often through LME warrants, and enters into a forward contract to sell the metal at a specified price on a specified date in the future. The trader seeks to set a price in the forward contract that will exceed the cost of storing, insuring, and financing the purchase of the metal during the period until the sale is executed. The prolonged "contango" in the aluminum market during 2011 and 2012, in which future aluminum prices were higher than current prices, made these types of trades profitable. Banks and their holding companies, with access to low-cost financing, increasingly entered into cash and carry trades. For more information on these trades, see, e.g., "Aluminum Premiums Seen by Rusal Exceeding 500 on Demand," Bloomberg, Agnieszka Troszkiewicz (6/3/2014), <http://www.bloomberg.com/news/2014-06-03/aluminum-premiums-seen-by-rusal-exceeding-500-on-demand.html>; 11/7/2014 email from Deutsche Bank legal counsel to Subcommittee, PSI-DB-01-000001 - 003, at 002.

<sup>1163</sup> 11/7/2014 email from Deutsche Bank legal counsel to Subcommittee, PSI-DB-01-000001 - 003, at 002.

<sup>1164</sup> Subcommittee briefing with Deutsche Bank legal counsel (10/22/2014).

<sup>1165</sup> Id.

<sup>1166</sup> See 9/15/2010 Warrant Finance Agreement between DB Energy Trading LLC and Metro, GSPSICOMMODS000047438.

<sup>1167</sup> Subcommittee interview of Christopher Wibbelman (10/6/2014).

<sup>1168</sup> 9/15/2010 Warrant Finance Agreement between DB Energy Trading LLC and Metro, GSPSICOMMODS000047438.

involved Metro capping Deutsche Bank's rent while its aluminum was in the queue waiting to be loaded out.<sup>1169</sup>

According to the unsigned contract, Deutsche Bank was responsible for paying \$42.95 per metric ton in costs to move the metal from one Metro warehouse to another. However, the contract also contained a provision in which Metro committed to pay the bank the same amount, \$42.95, for every metric ton of metal that was subsequently re-warranted and stored at a Metro warehouse. The effect was to offset Deutsche Bank's costs so long as its aluminum was re-warranted and stored in another Metro warehouse, essentially enabling Deutsche Bank to move its metal to the new location for free.<sup>1170</sup> In addition, according to Deutsche Bank, Metro then provided the bank with discounts equal to "roughly 15 cents/ton/day for the period from September 15, 2010 to February 16, 2011," a substantial savings.<sup>1171</sup>

Finally, the agreement imposed a substantial penalty on Deutsche Bank if it elected to do anything other than re-load the aluminum into a new Metro Detroit warehouse and re-warrant it. The agreement provided that, if Deutsche Bank sold the metal to a third party at any point during the five months covered by the deal, it would have to pay Metro a fee of \$65 per metric ton, or about \$6.5 million for 100,000 metric tons of aluminum.<sup>1172</sup>

The agreement essentially provided Deutsche Bank with the rent discount it had sought, but instead of applying the discount in a straightforward manner to the aluminum already stored in a Metro warehouse – a discount permissible under LME rules – Metro required Deutsche Bank to cancel its warrants, join the queue, leave the warehouse, and move its metal to a new Metro warehouse. The question is why Metro imposed that merry-go-round process as the condition for Deutsche Bank's rent discount.

There appears to have been no logistical reason to move the metal outside of the LME-approved storage space. None of the Metro Board of Directors presentations from that period discuss a shortage of LME-approved storage space. To the contrary, they show LME inventory levels in Detroit dropping immediately following the deal.<sup>1173</sup> Further, Metro CEO Christopher Wibbelman told the Subcommittee that he was not aware of any shortage of LME-storage capacity in Metro's Detroit facilities at that time.<sup>1174</sup>

The most immediate consequence of the transaction was Deutsche Bank's cancellation of warrants on 100,000 metric tons of aluminum, which immediately contributed to the queue at the Detroit warehouses. On September 15, 2010, there was a short queue in Detroit of about 20 days.<sup>1175</sup> One week later, on September 22, 2010, a few days after Deutsche Bank cancelled the

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<sup>1169</sup> Id.

<sup>1170</sup> As stated by Deutsche Bank's legal counsel, "the net cost to Deutsche Bank of moving this metal was zero." 11/7/2014 email from Deutsche Bank legal counsel to Subcommittee, PSI-DB-01-000001 - 003, at 002.

<sup>1171</sup> Id.

<sup>1172</sup> 9/15/2010 Warrant Finance Agreement between DB Energy Trading LLC and Metro, GSPSICOMMODS000047438.

<sup>1173</sup> See, e.g., 11/15/2010 "MITSU Holdings LLC Board of Directors Meeting," prepared by Metro and Goldman, GSPSICOMMODS00009559 - 574, at 566.

<sup>1174</sup> Subcommittee interview of Christopher Wibbelman (10/6/2014).

<sup>1175</sup> See undated "HARBOR's estimated aluminum load-out waiting time in LME Detroit Warehouses vs HARBOR's MW Transactional Premium," prepared by Harbor Aluminum, PSI-HarborAluminum-03-000004.

warrants, Metro had a queue of nearly 120 days, a significant portion of which was attributable to the bank's warrant cancellation.<sup>1176</sup> The presence of that nearly 120-day queue meant that any metal owner that cancelled warrants after September 22, 2010, would not only have to wait behind Deutsche Bank for their metal to be loaded out of the warehouse, but would also have to pay rent to Metro while waiting.

Of the original 100,000 metric tons of aluminum subject to the deal, approximately 70,000 metric tons left one Metro warehouse for another Metro warehouse in Detroit, and were then re-warranted.<sup>1177</sup> The remaining 30,000 metric tons were placed back on warrant before they were actually loaded out.<sup>1178</sup> Thus, in the end, all 100,000 metric tons were back on warrant at Metro at the end of the deal. The re-warranting of that metal ensured that if Deutsche Bank wanted to exit the Metro warehouse system in the future, it would have to rejoin the queue once more before it could take possession of its aluminum.

**Expressing Concerns.** Metro's merry-go-round transaction with Deutsche Bank raised concerns with at least one senior Metro executive. In early December 2010, Mark Askew, Metro's Vice President of Marketing, sent an email to Metro CEO Christopher Wibbelman expressing concerns about the Deutsche Bank deal.<sup>1179</sup> Mr. Askew relayed that a customer had "asked about rumours they'd heard on 100 k cancellation in Sep[tember] that we were blocking others."<sup>1180</sup> The only 100,000 metric ton cancellation in September at Metro was the one involving Deutsche Bank. The rumor, as relayed by Mr. Askew, focused explicitly on whether Metro was "blocking others."

Mr. Askew's email also expressed his own concern about the transaction: "I remain concerned, as I have expressed from [the] start, regarding 'Q management' etc (esp in light of conversation Michael said he had with Paco on the same a few weeks back)."<sup>1181</sup> Mr. Wibbelman explained to the Subcommittee that Mr. Askew had "never liked the idea" of offering financial incentives to existing Metro customers.<sup>1182</sup> Mr. Wibbelman denied that the Deutsche Bank deal was designed to help put a queue in place to block other clients from quickly leaving the Detroit warehouses.<sup>1183</sup>

As explained earlier, the longer Metro Detroit warehouse queue had two immediate consequences. It forced other metal owners to wait in line before they could exit and pay rent to Metro while waiting. In addition, the longer queue was highly correlated with higher Midwest Premiums which, according to some experts and industrial users, increased the all-in price for

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<sup>1176</sup> Id.

<sup>1177</sup> 11/7/2014 email from Deutsche Bank legal counsel to Subcommittee, PSI-DB-01-000001 - 003

<sup>1178</sup> Id.

<sup>1179</sup> 12/4/2010 email from Mark Askew, Metro, to Christopher Wibbelman, Metro (12/4/2010), GSPSICOMMODS000047422.

<sup>1180</sup> Id.

<sup>1181</sup> Id. The Subcommittee was told that "Paco" referred to a competitor, Pacorini Metals, which operated a metals warehouse in Vlissingen, Netherlands, which was also developing an unprecedented queue. Subcommittee interview of Christopher Wibbelman (10/24/2014).

<sup>1182</sup> Id. Mr. Wibbelman further told the Subcommittee that he believed that part of Mr. Askew's dislike of the deals was that Mr. Askew was not a part of them and was not compensated for them as a salesperson. Id.

<sup>1183</sup> Id.

aluminum. Higher aluminum prices increased the value of aluminum stockpiles and could also be used to benefit trading activities in the aluminum market.

## (ii) Four Red Kite Merry-Go-Round Deals

Metro conducted four merry-go-round deals with Red Kite, a London-based hedge fund that is active in the physical commodities markets. In each of the years 2011, 2012, and 2013, Red Kite, through either Red Kite Master Fund Ltd. or Red Kite Management Ltd., was one of Metro's top ten customers.<sup>1184</sup> The four merry-go-round deals all took place in 2012, and involved a total of nearly 440,000 metric tons of aluminum.<sup>1185</sup> Approximately 410,000 metric tons were loaded out of Metro warehouses and right back into other Metro warehouses.<sup>1186</sup> Because a small amount of metal never left Metro, a total of nearly 95% of the nearly 440,000 metric tons of aluminum either never left Metro or was loaded out of Metro only to be loaded back in to Metro warehouses. Each of the four Red Kite deals, like the Deutsche Bank deal, was reviewed and approved by Metro senior executives and the Goldman employees on the Metro Board's Commercial Decisions Subcommittee.<sup>1187</sup>

**First Three Red Kite Deals.** The first three deals with Red Kite took place from January through March of 2012. In those transactions, Metro offered financial incentives for Red Kite to cancel warrants on a combined total of 250,000 metric tons of aluminum, wait in line, load out the metal from Metro warehouses, load it back into other Metro warehouses, and re-warrant the metal.<sup>1188</sup> The incentives offered by Metro included: (1) paying a "day one" cash incentive to the metal owner when the metal warrants were cancelled,<sup>1189</sup> (2) offering a period of free rent, and (3) paying another cash incentive for re-warranting.<sup>1190</sup> As in the Deutsche Bank deal, each transaction required Red Kite to pay a substantial cash penalty to Metro if Red Kite did anything other than re-load the metal into a Metro warehouse and re-warrant it.<sup>1191</sup> The terms for all three deals, each of which involved millions of dollars, were set out, not in formal signed contracts, but in emails and invoices.<sup>1192</sup>

**Expressing Additional Concerns.** Around the same time that Metro entered into the first of the series of Red Kite deals, in February 2012, the Metro Vice President of Marketing, Mark Askew, sent an email to Michael Whelan, Metro's Vice President of Business

<sup>1184</sup> See 10/20/2014 letter from Goldman legal counsel to Subcommittee, GSPSICOMMODS00047431 - 432.

<sup>1185</sup> See 12/19/2012 "MITSI Holdings LLC Board of Directors Meeting," prepared by Metro and Goldman, GSPSICOMMODS00009332 - 354, at 348 (indicating a combined total of 410,000 metric tons, which later increased by another 30,000 metric tons, when the final deal rose from 160,000 to nearly 190,000 warrants).

<sup>1186</sup> *Id.*

<sup>1187</sup> Subcommittee interview of Jacques Gabillon (10/14/2014).

<sup>1188</sup> See 3/21/2012 "MITSI Holdings LLC Board of Directors Meeting," prepared by Metro and Goldman, GSPSICOMMODS00009423, at 437.

<sup>1189</sup> This incentive may have been intended to off-set fees associated with the subsequent loading out of metal.

<sup>1190</sup> 3/21/2012 "MITSI Holdings LLC Board of Directors Meeting," prepared by Metro and Goldman, GSPSICOMMODS00009423, at 437.

<sup>1191</sup> *Id.*

<sup>1192</sup> Subcommittee interview of Christopher Wibbelman (10/6/2014).

Development, copying Metro CEO Christopher Wibbelman and Metro Chief Operating Officer Leo Prichard, again expressing concerns about engaging in “queue management.”<sup>1193</sup>

Neither Mr. Wibbelman nor Mr. Prichard responded.<sup>1194</sup> Mr. Whelan responded to Mr. Askew’s email by defending the transaction:

“[W]e are not participating in queue management. We have done an off warrant storage deal with a customer who was going to remove the metal and place [it] in an off warrant warehouse. We were able to provide an off-warrant storage option and make a commercial deal that doesn’t in any way violate the rules of the LME.”<sup>1195</sup>

While Mr. Whelan’s email described the Red Kite deal as “off warrant storage,” all of the 250,000 metric tons of metal involved in the first three deals were subsequently re-warranted.<sup>1196</sup> So were the approximately 160,000 tons of aluminum moved to new Metro warehouses in the fourth and final deal. In addition, while Mr. Whelan stated that the merry-go-round transactions did not violate LME rules, Metro told the Subcommittee it had never actually consulted with the LME to obtain its view of the deals.<sup>1197</sup>

Although Mr. Askew’s concerns about how the queue was being managed were directly communicated in writing to senior Metro employees on two occasions, Jacques Gabillon, Chairman of the Metro Board of Directors, told the Subcommittee that he was not aware of them.<sup>1198</sup> While the deals themselves were discussed at Metro’s Board meetings, Mr. Askew’s concerns appear to have not been.<sup>1199</sup> Minutes from a March 2012 Metro Board meeting where the “off-warrant deals” were discussed, for example, do not mention Mr. Askew’s concerns or indicate any discussion of whether the deal was appropriate or consistent with LME rules.<sup>1200</sup>

Mr. Askew’s earlier email raised the issue of whether the merry-go-round deals were being used for “blocking others” – preventing metal owners from gaining possession of their stored metal within a reasonable period of time. The deals also created a false impression that metal was leaving the Metro system when, in fact, the metal was simply being moved around. Another concern is that the merry-go-round deals contributed to a longer warehouse queue which, in turn, was highly correlated with higher Midwest Premium prices, leading to charges by industrial users that the queues were distorting the aluminum market and increasing aluminum

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<sup>1193</sup> 2/25/2012 email from Mark Askew, Metro, to Michael Whelan, Leo Prichard and Christopher Wibbelman, Metro, GSPSICOMMODS00047422, at 423.

<sup>1194</sup> Subcommittee interview of Christopher Wibbelman (10/6/2014).

<sup>1195</sup> 2/25/2012 email from Michael Whelan, Metro, to Mark Askew, Leo Prichard and Christopher Wibbelman, Metro, GSPSICOMMODS00047422, at 423.

<sup>1196</sup> See 12/19/2012 “MITSI Holdings LLC Board of Directors Meeting,” prepared by Metro and Goldman, GSPSICOMMODS00009332, at 348.

<sup>1197</sup> Subcommittee interviews of Christopher Wibbelman (10/24/2014) and Jacques Gabillon (10/14/2014). As discussed below, without commenting specifically about Metro, the LME told the Subcommittee that “the LME would view such behavior as a contravention of the “spirit” of the relevant requirements, it may be difficult to argue that it constituted a contravention of the “letter” of those requirements.”

<sup>1198</sup> Subcommittee interview of Jacques Gabillon (10/14/2014).

<sup>1199</sup> Subcommittee interviews of Christopher Wibbelman (10/6/2014) and Jacques Gabillon (10/14/2014).

<sup>1200</sup> 3/21/2012 “MITSI Holdings LLC Board of Directors Meeting,” prepared by Metro and Goldman, GSPSICOMMODS00009423.

costs for consumers. There is no record, however, of any of those problems being discussed at Metro Board meetings at the time.

**Fourth Red Kite Deal.** After Mr. Askew's email, Metro entered into a fourth merry-go-round deal with Red Kite. That fourth and final deal between Red Kite and Metro was the largest. On November 5, 2012, Metro's warehouse manager emailed representatives of Red Kite about a large amount of aluminum that Red Kite was then storing at Metro warehouses in Detroit.<sup>1201</sup> The metal was being held in the name of Barclays Bank as part of a financing agreement between the bank and Red Kite.<sup>1202</sup> When the Metro manager emailed Red Kite, the aluminum was still under LME warrant in the Detroit warehouses.<sup>1203</sup>

The Metro email contained terms for another merry-go-round deal under which Red Kite was to "immediately" cancel warrants for 150,000 metric tons of metal,<sup>1204</sup> place the metal "asap" in the Detroit queue and, upon reaching the front of the queue, load the metal out of one Metro warehouse and into another Metro warehouse in the Detroit area.<sup>1205</sup> In exchange, Metro agreed to pay Red Kite cash incentives totaling \$196 per metric ton of metal that completed the loop and was re-warranted.<sup>1206</sup>

The cash incentives had two components. Like the previous Red Kite deals, Metro promised to pay a "day one" incentive, in this case equal to \$36 per metric ton, when Red Kite cancelled the warrants.<sup>1207</sup> The deal provided a second cash incentive of \$160 per metric ton when the metal was re-warranted.<sup>1208</sup> Together, Red Kite would receive \$36 per metric ton upon cancellation and another \$160 per metric ton upon re-warranting at other Metro warehouses, for a combined cash incentive of \$196 per metric ton.<sup>1209</sup> In addition, Metro committed to discount the rent it would charge Red Kite at the new warehouse locations and, as in other deals, pay the cost of shipping the metal from one warehouse to the other.

While Red Kite retained the right to either sell the metal when it reached the front of the queue or move it to a warehouse company other than Metro, as before, the Metro agreement

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<sup>1201</sup> See 11/5/2012 email from Gabriella Vagnini, Metro, to Barry Feldman, Red Kite, GSPSICOMMODS00046684.

<sup>1202</sup> See 9/26/2014 email from Barclays Capital Inc. to Subcommittee, "Barclays [BARC-AMER.FID670446]," PSI-Barclays-02-000001.

<sup>1203</sup> See 11/5/2012 email from Gabriella Vagnini, Metro, to Barry Feldman, Red Kite, GSPSICOMMODS00046684.

<sup>1204</sup> Id. The total amount of aluminum in the transaction later increased to nearly 190,000 tons. 4/15/2012 Simmons & Simmons letter to LME, Appendix A, GSPSICOMMODS00046850.

<sup>1205</sup> 11/5/2012 email from Gabriella Vagnini, Metro, to Barry Feldman, Red Kite, GSPSICOMMODS00046684.

<sup>1206</sup> See 4/15/2012 Simmons & Simmons letter to LME, Appendix A, GSPSICOMMODS00046850, at 854.

<sup>1207</sup> See 3/21/2012 "MITSI Holdings LLC Board of Directors Meeting," prepared by Metro and Goldman, GSPSICOMMODS00009423, at 437. See also Red Kite Master Fund Limited invoice to Metro (11/13/2012), GSPSICOMMODS00046876 (reflecting an amount of "USD 36.00 PMT").

<sup>1208</sup> See, e.g., 1/28/2014 Red Kite Master Fund Ltd. invoice to Metro, GSPSICOMMODS00046879 (reflecting an amount of "USD 160.00 PMT"); 4/15/2012 Simmons & Simmons letter to LME, Appendix A, GSPSICOMMODS00046850, at 854.

<sup>1209</sup> The "day one" incentive may have been intended to offset certain fees and costs associated with loading out the metal.

imposed a penalty if Red Kite did so. Specifically, if Red Kite did not direct the metal back to Metro warehouses, Red Kite would have to pay Metro a penalty of about \$66 per metric ton.<sup>1210</sup>

The transaction proposed by Metro involved tens of millions of dollars, but was never formalized in a signed contract; the November 5 Metro email and a handful of invoices<sup>1211</sup> appear to be the only documentation of the details of the agreement.<sup>1212</sup> Red Kite started cancelling its warrants just two days later, on November 7, 2012. Over the next six weeks, the hedge fund continued to cancel warrants as the amount of aluminum included in the deal reached nearly 190,000 metric tons.<sup>1213</sup> Prior to the deal, the queue in Detroit was just over 300 days long.<sup>1214</sup> By the end of December, just after the last of Red Kite's cancellations, the queue was just under 500 days, with a significant portion of that increase attributable to Red Kite's warrant cancellations.<sup>1215</sup>

In the end, of the nearly 190,000 metric tons covered by the fourth Red Kite merry-go-round deal, about 182,000 metric tons were loaded out of Metro warehouses.<sup>1216</sup> Of that, about 160,000 metric tons simply went out of some Metro warehouses and back into other Metro warehouses.<sup>1217</sup> Thus, nearly 90% of the metal shipped as pursuant to the deal went from Metro right back to Metro. Metro records show that, pursuant to this deal, Metro arranged for more than 4,300 truck shipments, moving the metal from some Metro warehouses to other Metro warehouses in the Detroit area, at a cost of more than \$1 million.<sup>1218</sup> That came on top of the \$26 million that Red Kite billed Metro for incentive payments under the deal.<sup>1219</sup>

### (iii) Glencore Merry-Go-Round Deal

In February 2013, Metro entered into the sixth and final merry-go-round deal disclosed by Goldman. The deal was struck with Glencore, a Swiss company active in physical commodity markets. The transaction involved Glencore's loading out about 91,400 metric tons of aluminum from Metro warehouses in Detroit, only to load the same amount into other Metro

<sup>1210</sup> The \$66 per ton fee represented the cost of the \$36 prepaid incentive plus an additional \$30 per ton. 4/15/2012 Simmons & Simmons letter to LME, Appendix A, GSPSICOMMODS00046850, at 854.

<sup>1211</sup> Subcommittee interview of Christopher Wibbelman (10/6/2014). See also, e.g., 11/13/2012 Red Kite Master Fund Ltd. invoice to Metro, GSPSICOMMODS00046876 (reflecting an amount of "USD 36.00 PMT"); 12/20/2012 Red Kite Master Fund Ltd. invoice to Metro, GSPSICOMMODS00046877; 1/28/2014 Red Kite Master Fund Ltd. invoice to Metro, GSPSICOMMODS00046878; 1/28/2014 Red Kite Master Fund Ltd. invoice to Metro, GSPSICOMMODS00046879 (reflecting an amount of "USD 160.00 PMT").

<sup>1212</sup> Subcommittee interview of Christopher Wibbelman (10/6/2014)

<sup>1213</sup> 4/15/2012 Simmons & Simmons letter to LME, at 4, GSPSICOMMODS00046850.

<sup>1214</sup> See undated "HARBOR's estimated aluminum load-out waiting time in LME Detroit Warehouses vs HARBOR's MW Transactional Premium," prepared by Harbor Aluminum, PSI-HarborAluminum-03-000004.

<sup>1215</sup> Id..

<sup>1216</sup> 4/15/2012 Simmons & Simmons letter to LME, Appendix A, GSPSICOMMODS00046850. The remaining 21,600 metric tons – totaling about 10% of the original deal amount – were shipped outside of the Metro warehouse system, because Red Kite had sold the metal to a third party.

<sup>1217</sup> The 21,600 tons were purchased from Red Kite and shipped to another warehouse. See 4/15/2012 Simmons & Simmons letter to London Metal Exchange, Appendix A, GSPSICOMMODS00046850.

<sup>1218</sup> 4/15/2012 Simmons & Simmons letter to LME, shipment spreadsheet, GSPSICOMMODS00046902.

<sup>1219</sup> Id. at Invoice Summary, GSPSICOMMODS00046872.



warehouses nearby, and warranting the metal. Metro's records reflect that all of the approximately 90,000 metric tons simply shuffled between different Metro warehouses.<sup>1220</sup>

The Glencore deal differed from Metro's other merry-go-round agreements in that it did not require Glencore to first cancel its warrants. That was because the company had already cancelled the warrants, and the metal was already in the queue to exit Metro's warehouses.<sup>1221</sup> Prior to execution of the deal, as with the other merry-go-round deals, the Glencore deal was reviewed and approved by senior Metro executives and by the Metro Board's Commercial Decisions Subcommittee, composed exclusively of Goldman employees. In addition, it was presented to the full Metro Board which, again, consisted solely of Goldman employees.<sup>1222</sup>

According to Goldman, the Glencore deal the following components. The first component, which covered about 50,000 metric tons of aluminum, was similar to past deals, in that Metro agreed to pay a cash incentive, this time \$198 per ton, for any metal that the company subsequently re-warranted at a Metro warehouse.<sup>1223</sup>

The second component involved two physical aluminum swaps. In the first swap, Metro arranged for Glencore to receive 21,000 metric tons of aluminum free on truck (FOT) in Baltimore from another metal owner, plus \$15 per metric ton from Metro, in return for Glencore's delivering to that third party warrants for 21,000 metric tons in Detroit.<sup>1224</sup> Mr. Wibbelman explained that Metro was able to help arrange the swap, because the owner of the aluminum in Baltimore had previously committed to shipping more than that amount, which he estimated at approximately 80,000 metric tons, to Metro.<sup>1225</sup> Mr. Wibbelman explained that Metro simply asked the metal owner to replace the obligation to deliver 21,000 metric tons to Metro with an obligation to deliver 21,000 metric tons to Glencore. The second swap involved Metro's arranging for Glencore to receive 20,000 metric tons of aluminum FOT in Mobile from yet another metal owner, plus \$20 per metric ton from Metro, in return for Glencore's again delivering to that third party warrants for 20,000 metric tons in Detroit.<sup>1226</sup>

By engaging in this transaction, Glencore was able to obtain 41,000 metric tons of aluminum from other warehouses, plus cash. Glencore told the Subcommittee that this

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<sup>1220</sup> However, according to Glencore, at least 70,000 metric tons was metal that had just previously been on-warrant at Metro. 11/7/2014 email from Glencore to Subcommittee, PSI-Glencore-01-000001, at 003. According to Goldman and Glencore, the deal involved a warrant incentive for 50,000 metric tons, as well as two swaps, one for 20,000 metric tons and another for 21,000. In addition, according to Glencore there was another deal that involved a separate warrant incentive for 25,000 to 75,000 additional metric tons. 11/7/2014 email from Glencore to Subcommittee, PSI-Glencore-01-000001 - 003, at 003.

<sup>1221</sup> 4/15/2012 Simmons & Simmons letter to LME, Appendix A, GSPSICOMMODS00046850; 11/7/2014 email from Glencore to Subcommittee, PSI-Glencore-01-000001 - 003, at 002.

<sup>1222</sup> See 4/15/2012 Simmons & Simmons letter to LME, at 6, GSPSICOMMODS00046839; 12/19/2012 "MITSI Holdings LLC Board of Directors Meeting," prepared by Metro and Goldman, GSPSICOMMODS00009332 - 354, at 348.

<sup>1223</sup> See 6/21/2013 Glencore Ltd. invoice to Metro, GSPSICOMMODS00046873 (reflecting 50,046.872 metric tons at \$198 per metric ton); Subcommittee briefing by Glencore (10/31/2014).

<sup>1224</sup> See 9/24/2013 Glencore Ltd. invoice to Metro, GSPSICOMMODS00046875 (reflecting 21,407.022 metric tons at \$15 per metric ton); Subcommittee briefing by Glencore (10/31/2014).

<sup>1225</sup> Subcommittee interview of Christopher Wibbelman (10/24/2014).

<sup>1226</sup> See 6/21/2013 Glencore Ltd. invoice to Metro, GSPSICOMMODS00046874 (reflecting 19,949.939 metric tons at \$20.15 per metric ton); Subcommittee briefing by Glencore (10/31/2014).

transaction also allowed Glencore to save on the costs on shipping metal from Detroit.<sup>1227</sup> According to Glencore, Metro was able to keep approximately 91,000 metric tons in its Detroit warehouses on warrant, as well as save the costs of shipping 21,000 metric tons of metal to Detroit from Baltimore.<sup>1228</sup> When the aluminum covered by the merry-go-round deal reached the head of the queue, each day on which that metal was loaded out, Metro experienced no net loss of metal, while other metal owners were effectively blocked from leaving the Metro system.<sup>1229</sup>

As a result of the deal, all 91,000 metric tons covered by the deal were subsequently warranted.<sup>1230</sup> To execute the transaction, Metro arranged for more than 2,200 individual truck shipments between Metro warehouses in the Detroit area and paid nearly \$500,000 for those shipments.<sup>1231</sup> In addition, a Metro invoice summary indicated that, as of March 2014, the warehouse had been billed about \$11 million by Glencore for the incentive payments under the agreement.<sup>1232</sup>

At about the time of this deal, Michael Whelan, who had taken the lead on this deal as well as the other merry-go-round transactions, was promoted.<sup>1233</sup> After a more than a dozen years at Metro, Mark Askew resigned.<sup>1234</sup>

**Transporting Merry-Go-Round Metal.** When asked whether the merry-go-round deals complied with LME rules, Jacques Gabillon, Chairman of the Metro Board of Directors as well as head of Goldman's Global Commodities Principal Investments group, told the Subcommittee that they did.<sup>1235</sup> He stated that, if metal associated with cancelled warrants was loaded back into the same warehouse from which it came, that would have violated an LME requirement that precludes warehouses from counting metal that is off warrant but "still on the Warehouse's premises" toward their load-out obligations.<sup>1236</sup> But the LME rules did not preclude a warehouse from loading out metal and then moving into a nearby warehouse belonging to the same company, according to Mr. Gabillon.<sup>1237</sup> He told the Subcommittee that, to ensure no LME

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<sup>1227</sup> Subcommittee briefing by Glencore (10/31/2014).

<sup>1228</sup> Id.

<sup>1229</sup> While the deal did not involve new cancellations, and so did not, by itself, lengthen the queue, by remaining in line, it blocked the exits and ensured that metal that would otherwise have been loaded out of Metro's system stayed within Metro.

<sup>1230</sup> 4/15/2012 Simmons & Simmons letter to LME, Appendix A, GSPSICOMMODS00046850. According to Glencore, approximately 71,000 metric tons of the metal that was ultimately placed on warrant at Metro was previously on warrant at Metro, while the remaining 20,000 tons were not previously on warrant at Metro. 11/7/2014 email from Glencore to Subcommittee, PSI-Glencore-01-000001 - 003, at 003. Nevertheless, the net effect was that Metro kept 91,000 metric tons on warrant at Metro.

<sup>1231</sup> Id. at shipment spreadsheet, GSPSICOMMODS00047097.

<sup>1232</sup> Id. at Invoice Summary, GSPSICOMMODS00046872.

<sup>1233</sup> Subcommittee interview of Christopher Wibbelman (10/6/2014).

<sup>1234</sup> See "Marketing vice president Askew quits metals warehouse" Reuters (4/12/2013), Metro <http://www.reuters.com/article/2013/04/12/metals-warehousing-askew-idUSL5N0CZ1HA20130412>.

<sup>1235</sup> Subcommittee interview with Jacques Gabillon (10/14/2014).

<sup>1236</sup> Id. See also "Terms and conditions applicable to all LME listed warehouse companies," LME website, at ¶6.3.2,

<https://www.lme.com/~media/Files/Warehousing/Warehouse%20consultation/Proposed%20revised%20Warehouse%20Agreement.pdf>.

<sup>1237</sup> Subcommittee interview with Jacques Gabillon (10/14/2014).

violation occurred, Metro had set up a system to exclude the originating warehouse from the list of possible destinations for metal being loaded out of that warehouse.<sup>1238</sup> While Mr. Gabillon said that the Metro merry-go-round deals complied with the LME load-out rules, the LME itself has not, to date, made a public determination on that issue, as discussed below.

The Metro system for transporting metal that was part of a merry-go-round deal produced some unusual metal movements. For example, on October 2, 2013, several trucks were loaded with aluminum at a Metro warehouse on Lafayette Street in Mount Clemens, Michigan, destined for another Metro warehouse about twelve miles away. That same day, several trucks were loaded with aluminum at a third Metro warehouse in New Baltimore, Michigan, and shipped to the Lafayette Street warehouse. The next day, the Lafayette Street warehouse again shipped out several truckloads of aluminum only to be on the receiving end of metal shipments the day after that.<sup>1239</sup> In short, over the space of two days, the Lafayette Street warehouse saw truckloads of virtually identical aluminum shipments depart, arrive, depart, and arrive again.

On another occasion, in November, 2013, Metro loaded aluminum out of one warehouse and moved it into another warehouse about 200 feet away across a parking lot.<sup>1240</sup> Goldman told the Subcommittee that warehouse personnel didn't know whether the metal was moved across the parking lot on the property to the second warehouse, or instead was driven around the block on public streets.<sup>1241</sup> In any event, multiple trucks trundled tons of aluminum from one warehouse location to the other just a few feet away.<sup>1242</sup>

On another three-day period in December 2013, pursuant to a merry-go-round deal, trucks carrying tons of aluminum transported that aluminum to and from the exact same warehouses in a circular pattern at odds with rational warehouse activity. The trucks loaded the aluminum from the first warehouse, unloaded it at the second, picked up different lots of aluminum from the second warehouse, and drove it to the first where it was unloaded. Those trucks bearing similar loads of aluminum did not transport the metal for free, but imposed substantial costs on Metro to carry out the transactions.

Thousands of similar shipments occurred during the course of Metro's merry-go-round deals. In fact, according to Goldman, between February 2010 and January 2014, more than 625,000 tons of aluminum were loaded out of a Metro warehouse in Detroit only to be loaded right back into another Metro facility in Detroit, all part of the Metro metal merry-go-round.<sup>1243</sup> In the end, while the truck movements created a false impression that metal was actually leaving the Metro warehouses, in fact, almost all of the metal was simply being moved around the warehouse system in Detroit.

**Reacting to the Metro Merry-Go-Round.** Metro's practice of loading metal out of one Metro warehouse only to load it back into another Metro warehouse came to the public's attention through a July 20, 2013, front-page New York Times article that disclosed the practice

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<sup>1238</sup> Id.

<sup>1239</sup> See 4/15/2012 Simmons & Simmons letter to LME, chart, GSPSICOMMODS00046906 - 615.

<sup>1240</sup> See Spreadsheet prepared by Goldman, GSPSICOMMODS00046902, at 974 - 975.

<sup>1241</sup> Subcommittee interview of Christopher Wibbelman (10/24/2014).

<sup>1242</sup> See Spreadsheet prepared by Goldman, GSPSICOMMODS00046902, at 974 - 975.

<sup>1243</sup> 10/22/2014 letter from Goldman legal counsel to Subcommittee, PSI-GoldmanSachs-22-000001 - 002, at 002.

and raised fresh concerns about the integrity of the aluminum market.<sup>1244</sup> The article quoted a former Metro forklift operator who described a “merry-go-round of metal,” and indicated that the practice had become a running joke among some warehouse workers.<sup>1245</sup>

On July 23, 2013, the Senate Banking Subcommittee on Financial Institutions and Consumer Protection held a hearing on bank involvement with physical commodities, and focused attention more broadly on the Metro Detroit warehouse queue, raising concerns that it was distorting the aluminum market and inflating aluminum prices.<sup>1246</sup> One witness from MillerCoors testified that companies like Metro had created bottlenecks that slowed the removal of aluminum from their warehouses, and forced metal owners to pay additional rent. He further testified that those actions had cost MillerCoors “tens of millions of dollars in excess premiums over the last several years,” and imposed an estimated “additional \$3 billion expense on companies that purchase aluminum.”<sup>1247</sup> In an attempt to quiet the uproar, Goldman issued a statement offering, as one media report put it, “to speed up delivery of aluminum to users of the metal and proposed changes to industry rules amid claims that its warehouse unit created shortages and drove up prices.”<sup>1248</sup>

Despite that offer, in August 2013, more than a dozen class action lawsuits were filed against Goldman, Metro, the LME, and others, by aluminum purchasers claiming:

“[D]efendants together arranged to stockpile aluminum in warehouses in the Midwestern portion of the United States and delayed load-outs of such aluminum, causing storage costs to increase. This led to an increase in the Midwest Premium, a price component that incorporates a number of inputs including storage costs. Plaintiffs allege that their purchases of aluminum are priced with reference to the Midwest Premium, and that they therefore paid inflated prices.”<sup>1249</sup>

**Triggering LME Investigation.** Another development from the New York Times article was that, shortly after its publication, an LME examiner visited Metro and made a number of inquiries into Metro’s practices. Several months later, on December 4, 2013, the LME notified Metro that the exchange had opened a formal investigation “into the circumstances surrounding the movement of primary aluminum between listed warehouses” operated by Metro in

<sup>1244</sup> “A Shuffle of Aluminum, but to Banks, Pure Gold,” New York Times, David Kocieniewski, [http://www.nytimes.com/2013/07/21/business/a-shuffle-of-aluminum-but-to-banks-pure-gold.html?pagewanted=all&\\_r=1&\\_r=1&\\_r=1](http://www.nytimes.com/2013/07/21/business/a-shuffle-of-aluminum-but-to-banks-pure-gold.html?pagewanted=all&_r=1&_r=1&_r=1).

<sup>1245</sup> *Id.* Concerns about Metro’s lengthening queue and its effect on aluminum markets had begun years earlier. See, e.g., “Wall Street Gets Eyed in Metal Squeeze,” Wall Street Journal, Tatyana Shumsky and Andrea Hotter (6/17/2011), <http://online.wsj.com/articles/SB10001424052702304186404576389680225394642>.

<sup>1246</sup> See “Examining Financial Holding Companies: Should Banks Control Power Plants, Warehouses, and Oil Refineries?” hearing before the U.S. Senate Banking Subcommittee on Financial Institutions and Consumer Protection, S. Hrg. 113-67 (7/23/2013), opening statement of Subcommittee Chairman Sherrod Brown, <http://www.gpo.gov/fdsys/pkg/CHRG-113shrg82568/html/CHRG-113shrg82568.htm>.

<sup>1247</sup> *Id.*, prepared testimony of Tim Weiner, Global Risk Manager, Commodities/Metals, MillerCoors LLC, at 4.

<sup>1248</sup> “Goldman Sachs Offers Aluminum to Clients Stuck in Queue,” Bloomberg, Michael J. Moore and Agnieszka Troszkiewicz (7/31/2013), <http://www.bloomberg.com/news/2013-07-31/goldman-sachs-offers-aluminum-to-clients-stuck-in-queue.html>.

<sup>1249</sup> See In Re Aluminum Warehousing Antitrust Litigation, 2014 U.S. Dist. LEXIS 121435 (USDC SDNY)(8/29/2014)(court decision describing allegations; it dismissed the class action suits for lack of standing).

Detroit.<sup>1250</sup> A few days later, LME sent Metro a request for documents and information about Metro's cancellation practices, the inducements it offered to metal owners who participated in the merry-go-round transactions, and whether Metro considered those metal shipments consistent with its load-out obligations under LME rules.<sup>1251</sup> The LME also asked why Metro had not consulted the exchange about the practice before engaging in it.<sup>1252</sup>

On January 27, 2014, Metro responded to the LME's letter.<sup>1253</sup> The response drew upon information provided by a number of Metro and Goldman employees, including Jacques Gabillon, head of Goldman's GCPI group and Chairman of Metro's Board of Directors. Metro's response detailed the last Red Kite deal and the Glencore deal described above.<sup>1254</sup> As to the unusual movements of metal that resulted from the deals, Metro asserted that once the aluminum was loaded onto a truck, the owner of the metal was entitled to send it anywhere the owner wanted — including back to Metro. Metro wrote:

“[Metro] considers metal that is loaded free on truck (FOT) at the owner's instruction, in accordance with the order of priority required by the LME ... to count towards the operator's load-out obligations. At that point, the warehouse operator has released possession of the metal and thus has loaded-out the metal from its warehouse. The LME has long recognized the right of the metal owner to decide what to do with free metal, and, as the operator of LME-approved warehouses, Metro is bound to respect the owner's instruction.”<sup>1255</sup>

Metro stated that, “consistent with LME requirements, Metro deducts metal from its inventory once a bill of lading has been signed by both Metro and the truck operator.”<sup>1256</sup> Metro also wrote that LME's external auditors had reviewed Metro's operations pursuant to inventory audits in 2012, and “no material issues” were noted in the Audit Summary or any follow up.<sup>1257</sup>

On March 10, 2014, LME sent another letter to Metro, asking for details about Metro's vetting and approval process for the deals, and asking for new information, including whether Metro employees had “brokered” the merry-go-round deals identified in Metro's January letter, and whether Metro had considered asking LME “as to the appropriateness” of the deals.<sup>1258</sup> LME also asked whether “Metro consider[ed] that the incentives it offered contributed to the perpetuation of metal queues in Detroit.”<sup>1259</sup>

On April 15, 2014, Metro replied to the LME's letter.<sup>1260</sup> Metro said that it was “unable to pinpoint which party first initiated the Transactions.”<sup>1261</sup> As to whether the warehouse

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<sup>1250</sup> 12/4/2013 letter from LME to Metro, GSPSICOMMODS00046656 [sealed exhibit].

<sup>1251</sup> 12/6/2013 letter from LME to Metro, GSPSICOMMODS00046658 [sealed exhibit].

<sup>1252</sup> *Id.*

<sup>1253</sup> 1/27/2014 letter from Simmons & Simmons to LME, GSPSICOMMODS00046661.

<sup>1254</sup> *Id.* at Appendix A, GSPSICOMMODS00046666. The four previous merry-go-round deals were not within the time scope of the LME's document request.

<sup>1255</sup> 1/27/2014 letter from Simmons & Simmons to LME, GSPSICOMMODS00046661, 662.

<sup>1256</sup> *Id.*

<sup>1257</sup> *Id.*

<sup>1258</sup> 3/10/2013 letter from LME to Metro, GSPSICOMMODS00046827, at 828 [sealed exhibit].

<sup>1259</sup> *Id.* at GSPSICOMMODS00046827, 831.

<sup>1260</sup> 4/15/2012 letter from Simmons & Simmons to LME, GSPSICOMMODS00046834.

company had considered asking the LME its view of the deals, Metro stated that the company “regards its process for reviewing all transactions to be a matter of sound corporate practice and governance and therefore did not make enquiries to the LME regarding the [Red Kite and Glencore] Transactions.”<sup>1262</sup> Metro also denied that the merry-go-round deals had contributed to the perpetuation of the queue stating that “Metro has no influence over warrant cancellations.”<sup>1263</sup> Metro made that statement even after paying millions of dollars in incentives for warrant cancellations.

Metro also attempted to justify the incentives offered to Red Kite and Glencore, by explaining that it was “competing with other storage options available” to those companies.<sup>1264</sup> Metro also continued to assert that the deals were consistent with LME rules:

“Metro does not consider the incentives it offered to be ‘exceptional inducements’ that ‘artificially or otherwise constrained’ the ‘proper functioning of the market through the liquidity and elasticity of stocks of metal under warrant.’ (Clause 9.3.1 of the Warehouse Agreement.)”<sup>1265</sup>

The Subcommittee is not aware of any correspondence between LME and Metro since Metro’s April reply. The LME would not comment on the existence or status of the investigation.<sup>1266</sup>

The Subcommittee then asked the LME whether it would “consider it a violation of its load out rule for an owner of multiple warehouses to “load out” metal from one warehouse only to load it back in to another warehouse owned by the same company in the same geographic region.” The LME told the Subcommittee that “while the LME would view such behavior as inconsistent with the “spirit” of the relevant requirements, it may not violate the “letter” of those requirements because the relevant terms may be susceptible to more than one interpretation.”<sup>1267</sup> The LME has recently initiated a consultation on changes to its warehousing requirements to stop the practice.<sup>1268</sup>

### **(e) Benefiting from Proprietary Cancellations**

In addition to the merry-go-round deals, four large proprietary cancellations by JPMorgan and Goldman also measurably lengthened the Detroit queue. The JPMorgan cancellations

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<sup>1261</sup> Id at 837.

<sup>1262</sup> Id at 838.

<sup>1263</sup> Id at 844.

<sup>1264</sup> Id. at 843.

<sup>1265</sup> Id at 842.

<sup>1266</sup> The LME has consistently declined the Subcommittee’s invitations to discuss the matter, citing the LME’s role as a regulator. In particular, the LME stated that “as an instrumentality of the government of the United Kingdom and a market regulator, the LME maintains strict confidentiality of ongoing investigations into approved warehouses and therefore we are unable to provide further information. ... The LME’s confidentiality obligations stem from multiple sources.” 11/10/2014 letter from LME to Subcommittee, LME\_PSI0002459, at 461.

<sup>1267</sup> Id..

<sup>1268</sup> 11/7/2014 “Consultation and Proposed Amendments to the Policies and Procedures Relating to the LME’s Physical Delivery Network,” prepared by LME, [https://www.lme.com/~media/files/notices/2014/2014\\_11/14%20318%20a310%20w148%20physical%20network%20reform%20consultation%20notice.pdf](https://www.lme.com/~media/files/notices/2014/2014_11/14%20318%20a310%20w148%20physical%20network%20reform%20consultation%20notice.pdf).

involved about 200,000 metric tons of aluminum and took place in January and December 2012. The Goldman cancellations involved more than 300,000 metric tons of aluminum and took place in May and December 2012.

**JPMorgan Cancellations.** In January 2012, JPMorgan cancelled warrants for nearly 100,000 metric tons of aluminum held at Metro in Detroit. JPMorgan told the Subcommittee that the aluminum belonged to JPMorgan Chase Bank, which was not acting as an agent for any client but was acting on its own behalf, and that the purpose of the cancellation was, in part, to replenish its readily available stocks of aluminum.<sup>1269</sup> At the beginning of January 2012, the Detroit queue was approximately 115 days. By January 20, after JPMorgan had cancelled its warrants for 100,000 metric tons, the queue had increased to 216 days.<sup>1270</sup> A significant portion of that increase was attributable to JPMorgan's cancellation. According to JPMorgan, after waiting about nine months to get through the queue, the majority of the aluminum was shipped out of the Metro warehouse and into a Henry Bath LME-approved warehouse in Baltimore.<sup>1271</sup>

Nearly a year later, in December 2012, JPMorgan cancelled warrants for another approximately 95,000 metric tons of aluminum. The bank told the Subcommittee that it was the direct owner of the aluminum, it was not acting on behalf of a client, and the purpose of the cancellation was to use the aluminum in various future transactions.<sup>1272</sup> In mid-December 2012, prior to the cancellation, the queue in Detroit was less than 350 days. By the end of that month the wait for aluminum approached 500 days, with the increase appearing to be largely attributable to warrant cancellations by JPMorgan, Red Kite, and Goldman.<sup>1273</sup> JPMorgan waited in the queue for more than one year. In early 2014, the metal was shipped out of the Metro warehouses.<sup>1274</sup> According to JPMorgan, some of the aluminum was ultimately sold to clients and the remainder was shipped to other warehouses.<sup>1275</sup>

**Goldman Cancellations.** In 2012, the same year as the JPMorgan cancellations, Goldman engaged in two large acquisitions of aluminum warrants followed by cancellations of many of those warrants. The cancellations involved more than 300,000 tons of aluminum worth hundreds of millions of dollars.

Goldman told the Subcommittee that, in 2012, it began to focus on building trading relationships with aluminum consumers and set out to increase its physical holdings of aluminum

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<sup>1269</sup> Subcommittee briefing by JPMorgan (9/5/2014).

<sup>1270</sup> See undated "Harbor's Estimated Aluminum Load-Out Waiting Time in LME Detroit Warehouses, prepared by Harbor Aluminum, PSI-HarborAlum-01-000001.

<sup>1271</sup> Subcommittee briefing by JPMorgan (9/5/2014). At the time, JPMorgan owned the Henry Bath warehouses. In March 2014, JPMorgan reached an agreement to sell its physical commodities business to Mercuria Energy Group, including the Henry Bath warehousing business. See Subcommittee briefing by JPMorgan (9/5/14); 3/19/2014 JPMorgan press release, "J.P. Morgan announces sale of its physical commodities business to Mercuria Energy Group Limited,"

[https://www.jpmorgan.com/cm/cs?pagename=JPM\\_redesign/JPM\\_Content\\_C/Generic\\_Detail\\_Page\\_Template&cid=1394963095027&c=JPM\\_Content\\_C](https://www.jpmorgan.com/cm/cs?pagename=JPM_redesign/JPM_Content_C/Generic_Detail_Page_Template&cid=1394963095027&c=JPM_Content_C).

<sup>1272</sup> Subcommittee briefing by JPMorgan (9/5/2014).

<sup>1273</sup> See undated "Harbor's Estimated Aluminum Load-Out Waiting Time in LME Detroit Warehouses, prepared by Harbor Aluminum, PSI-HarborAlum-01-000001.

<sup>1274</sup> Subcommittee briefing by JPMorgan (9/5/2014).

<sup>1275</sup> Id.

to do business with those clients.<sup>1276</sup> Goldman told the Subcommittee that it had determined that purchasing aluminum warrants on the LME was the most cost-effective way to build its physical inventory and set out to buy readily available aluminum, meaning aluminum that was not in a warehouse with a queue, such as Metro.<sup>1277</sup>

According to Goldman records, in March 2012, it held about 277,000 metric tons of aluminum.<sup>1278</sup> Goldman told the Subcommittee that it entered into a large number of LME futures contracts with warrants for delivery of aluminum in April 2012.<sup>1279</sup> At the same time, the company sold futures contracts to deliver LME aluminum warrants in May and June.<sup>1280</sup> At the time, the vast majority of warrants used to settle LME aluminum trades were associated with aluminum held in either Detroit or Vlissingen. Since those warrants were associated with aluminum held in warehouses with long queues, they were the least valuable and the most likely to be used to settle futures trades.<sup>1281</sup> According to Goldman, its goal was to buy so many LME warrants for April delivery that at least some of those warrants would be for aluminum held in warehouses without queues.<sup>1282</sup>

Goldman executed the trades in April 2012, which increased its physical aluminum holdings that month to nearly 780,000 tons of aluminum with a market value of more than \$1.6 billion.<sup>1283</sup> According to Goldman, however, the effort to secure warrants in warehouses without queues was unsuccessful, and the company used many of the warrants it had bought to meet its May and June trading commitments.<sup>1284</sup>

On May 15, 2012, in the midst of that series of trades, Goldman cancelled warrants associated with almost 50,000 metric tons of physical aluminum in Metro's Detroit warehouses. In mid-July 2012, Goldman cancelled warrants for another 45,000 metric tons in Detroit, for a combined total of 95,000 metric tons.<sup>1285</sup> Prior to Goldman's first set of cancellations, in mid-

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<sup>1276</sup> Subcommittee briefing by Goldman (7/16/2014).

<sup>1277</sup> *Id.* Finding warrants for aluminum at warehouses without queues was difficult since the two warehouses with the vast majority of LME warranted aluminum were the Metro warehouses in Detroit and the Pacorini warehouses in Vlissingen, both of which had long queues for removal of metal. A later public report issued by the LME in November 2013, noted the problem, observing that, of the aluminum warrants used to settle trades on September 18, 2013, for example, 99% were associated with aluminum in a warehouse with a queue. See 11/2013 "Summary Public Report of the LME Warehousing Consultation," prepared by LME, <https://www.lme.com/~media/Files/Warehousing/Warehouse%20consultation/Public%20Report%20of%20the%20LME%20Warehousing%20Consultation.pdf>.

<sup>1278</sup> 2/20/2013 letter from Goldman legal counsel to Subcommittee, at chart, GSPSICOMMODS00000002-R.

<sup>1279</sup> Subcommittee briefing by Goldman (7/16/2014).

<sup>1280</sup> *Id.*

<sup>1281</sup> *Id.*; Subcommittee interview of Gregory Agran (10/10/2014).

<sup>1282</sup> *Id.*; See 8/8/2014 letter from Goldman to Subcommittee, "Follow-Up Requests," PSI-Goldman-11-000001 - 011, at 007; Subcommittee briefing by Goldman (7/16/2014).

<sup>1283</sup> 2/20/2013 letter from Goldman legal counsel to Subcommittee, at chart, GSPSICOMMODS00000002-R.

<sup>1284</sup> 8/8/2014 letter from Goldman legal counsel to Subcommittee, "Follow-Up Requests," PSI-Goldman-11-000001 -011, at 007; Subcommittee interview of Gregory Agran (10/10/2014).

<sup>1285</sup> 4/30/2014 letter from Goldman legal counsel to Subcommittee, "April 2, 2014 Email," PSI-GoldmanSachs-09-000001 - 013, Exhibit C, at 011.



May 2102, the queue in Detroit was about 285 days.<sup>1286</sup> By mid-July 2012, after the last of Goldman's cancellations, it had increased by nearly a third to around 370 days.<sup>1287</sup>

A few months later, in December 2012, driven by what Goldman called a "longer-term strategy to developing our consumer franchise business," the company again set out to significantly increase its holdings of physical aluminum.<sup>1288</sup> According to Goldman, discussions with aluminum consuming clients had identified "interest in having Goldman Sachs serve as a source of supply for metal in the future and as a counterparty on forward-starting hedge transactions."<sup>1289</sup>

Goldman told the Subcommittee that, despite its failure to obtain any significant number of warrants outside of Detroit and Vlissingen during the prior spring, it decided to try the same strategy again – buying such a large volume of LME warrants that at least some would likely come from warehouses without queues.<sup>1290</sup> Goldman ultimately purchased LME futures contracts for December delivery with warrants for more than 1 million tons aluminum, a huge amount. At the same time, the company sold a large number of futures contracts for January 2013.<sup>1291</sup>

In the midst of that series of trades, Goldman's physical aluminum holdings grew to more than 1.5 million metric tons of aluminum worth more than \$3.2 billion, nearly five times the amount held just weeks earlier. As with the first attempt, however, Goldman obtained few warrants for aluminum in a warehouse without a queue. According to Goldman, it then used about half of the LME warrants to settle its short January contracts. Even after that, at the end of January 2013, Goldman held nearly 825,000 metric tons of aluminum worth more than \$1.76 billion.<sup>1292</sup>

Goldman said that the LME warrants that were not used to settle the January contracts were then cancelled, which significantly increased the queue in Metro's Detroit warehouses as well as the queue in the Pacorini warehouses located in Vlissingen, Netherlands where much of the warranted aluminum was located.<sup>1293</sup> Over just three days in mid-December 2012, Goldman cancelled warrants for more than 227,000 metric tons of aluminum in Detroit.<sup>1294</sup>

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<sup>1286</sup> See undated "Harbor's Estimated Aluminum Load-Out Waiting Time in LME Detroit Warehouses, prepared by Harbor Aluminum, PSI-HarborAlum-01-000001.

<sup>1287</sup> *Id.*

<sup>1288</sup> 8/8/2014 letter from Goldman legal counsel to Subcommittee, "Follow-Up Requests," PSI-Goldman-11-000001 - 011, at 007.

<sup>1289</sup> *Id.*

<sup>1290</sup> 8/8/2014 letter from Goldman legal counsel to Subcommittee, "Follow-Up Requests," PSI-Goldman-11-000001 - 011, at 007; Subcommittee briefing by Goldman (7/16/2014).

<sup>1291</sup> 8/8/2014 letter from Goldman legal counsel to Subcommittee, "Follow-Up Requests," PSI-Goldman-11-000001 - 011, at 007.

<sup>1292</sup> 4/30/2014 letter from Goldman legal counsel to Subcommittee, "April 2, 2014 Email," PSI-GoldmanSachs-09-000001 - 013, Exhibit D, at 013.

<sup>1293</sup> 8/8/2014 letter from Goldman legal counsel to Subcommittee, "Follow-Up Requests," PSI-Goldman-11-000001 - 011, at 007.

<sup>1294</sup> 4/30/2014 letter from Goldman legal counsel to Subcommittee, "April 2, 2014 Email," PSI-GoldmanSachs-09-000001 - 013, Exhibit C, at 011.

Why Goldman thought that the second aluminum trade would succeed when the first failed is unclear, but what is clear is that, for a second time, Goldman's cancellations lengthened the Metro Detroit queue. In mid-December 2012, prior to Goldman's cancelling the warrants, the queue in Detroit was just under 350 days.<sup>1295</sup> By the end of December 2012, the wait to get aluminum out of the Metro warehouse system was approaching 500 days, with the increase largely attributable to warrant cancellations by JPMorgan, Red Kite, and Goldman.<sup>1296</sup>

As explained earlier, longer queues in Detroit were highly correlated with higher Midwest Premiums.<sup>1297</sup> According to Goldman, longer queues and higher Midwest Premiums would directly impact LME prices.<sup>1298</sup> At the same time Goldman was cancelling its warrants, it was actively trading financial products tied to the price of aluminum, including the LME price.

### **(f) Benefiting from Fees Tied to Higher Midwest Premium Prices**

Under Goldman's ownership, Metro entered into a series of transactions that enabled it to benefit financially from the rising Midwest Premium, which was highly correlated to its own lengthening queue in Detroit.

As explained above, the Midwest Premium is a key price component in U.S. aluminum contracts that, along with the LME price, produces the all-in price for physical aluminum. The premium is intended to reflect, among other factors, storage costs for aluminum. While the Midwest Premium used to be an inconsequential part of the all-in price, about 4%; over the last five years, it has increased substantially, and, since January 2014, has been more than 20% of the all-in price. As shown in a graph earlier, between 2010 and 2014, the increases in the Midwest Premium have had an extremely high correlation of 0.89 with increases in the length of the Metro Detroit queue.<sup>1299</sup> In other words, when the queue lengthened, the Midwest premium almost always increased.

In response to Subcommittee questions, Goldman disclosed that, from 2010 through 2014, in at least 13 arrangements, Metro received payments from some warehouse clients of amounts that were directly or indirectly tied to the Midwest Premium price.<sup>1300</sup> Agreements that

<sup>1295</sup> See undated "Harbor's Estimated Aluminum Load-Out Waiting Time in LME Detroit Warehouses," prepared by Harbor Aluminum, PSI-HarborAlum-01-000001.

<sup>1296</sup> *Id.*

<sup>1297</sup> For another explanation of the correlation between the queue and the Midwest Premium price, see In Re Aluminum Warehousing Antitrust Litigation, 2014 U.S. Dist. LEXIS 121435 (USDC SDNY)(8/29/2014)(court decision summarizing the position taken by aluminum buyers: "LME stored aluminum in the Detroit area determines the level of the Midwest Premium. As trader rather than user dynamics took root in the LME warehouses, the level of the Premium became driven by trading dynamics rather than actual supply and demand of aluminum users. ... A direct result of this was to increase storage duration, thus storage costs, thereby increasing the Midwest Premium.").

<sup>1298</sup> Goldman has strenuously argued, however, that queues simply impact the LME price in relation to the physical price. Put another way, in Goldman's opinion, as the queue gets longer, the Midwest Premium gets higher and the LME price falls, yet the "all in price" remains the same. See "The economic role of a warehouse exchange," Goldman, Sachs (10/31/2013), GSPSICOMMODS00047511, at 513.

<sup>1299</sup> See chart entitled, "Detroit Queue and Platts MW Aluminum Premium," above.

<sup>1300</sup> 10/2/2014 letter from Goldman legal counsel to Subcommittee, PSI-GoldmanSachs-21-000001 - 10, at 002 and Appendix A, GSPSICOMMODS00046531; and 10/3/2014 letter from Goldman legal counsel to Subcommittee, PSI-GolmanSachs-27-000001 and attachment, GSPSICOMMODS46630.

# EXHIBIT 77

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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549**

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**FORM 10-Q**

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(Mark One)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES  
EXCHANGE ACT OF 1934**

For the Quarterly Period Ended June 30, 2014

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES  
EXCHANGE ACT OF 1934**

Commission File Number 1-3610

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**ALCOA INC.**

(Exact name of registrant as specified in its charter)

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**PENNSYLVANIA**  
(State of incorporation)

**25-0317820**  
(I.R.S. Employer  
Identification No.)

**390 Park Avenue, New York, New York**  
(Address of principal executive offices)

**10022-4608**  
(Zip code)

**Investor Relations 212-836-2674**  
**Office of the Secretary 212-836-2732**  
(Registrant's telephone number including area code)

(Former name, former address and former fiscal year, if changed since last report)

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Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months, and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the

**Item 1A. Risk Factors.**

Alcoa's business, financial condition, or results of operations may be impacted by a number of factors. In addition to the factors discussed separately in this report, in Part I, Item 1A to Alcoa's Annual Report on Form 10-K for the year ended December 31, 2013, and other reports filed by Alcoa with the Securities and Exchange Commission, the following risks, updated from and in addition to the Form 10-K, could affect Alcoa's business, financial condition, or results of operations. Additional risks and uncertainties not currently known to Alcoa or that Alcoa currently deems to be immaterial also may materially adversely affect Alcoa's business, financial condition, or results of operations.

**Alcoa could be materially adversely affected by declines in aluminum prices, including global, regional and product-specific prices.**

The overall price of primary aluminum consists of several components: 1) the underlying base metal component, which is typically based on quoted prices from the London Metal Exchange (LME); 2) the regional premium, which comprises the incremental price over the base LME component that is associated with the physical delivery of metal to a particular region (e.g., the Midwest premium for metal sold in the United States); and 3) the product premium, which represents the incremental price for receiving physical metal in a particular shape (e.g., coil, billet, slab, rod, etc.) or alloy. Each of the above three components has its own drivers of variability. The LME price is typically driven by macroeconomic factors, global supply and demand of aluminum (including expectations for growth and contraction and the level of global inventories), and financial investors. Regional premiums tend to vary based on the supply of and demand for metal in a particular region and associated transportation costs. Product premiums generally are a function of supply and demand for a given primary aluminum shape and alloy combination in a particular region. Speculative trading in aluminum and the influence of hedge funds and other financial institutions participating in commodity markets have also increased in recent years, contributing to higher levels of price volatility. In 2013, the LME price of aluminum reached a high of \$2,123 per metric ton and a low of \$1,695 per metric ton. Continued high LME inventories, or the release of substantial inventories into the market, could lead to a reduction in the price of aluminum. Declines in the LME price have had a negative impact on Alcoa's results of operations. Additionally, Alcoa's results could be adversely affected by decreases in regional premiums that participants in the physical metal market pay for immediate delivery of aluminum, which are part of the overall aluminum price. Although regional premiums have reached levels substantially higher than historical averages during 2013 and 2014, new LME warehousing rules (see risk factor entitled "*New LME warehousing rules could cause aluminum prices to decrease.*") or other factors may cause these premiums to decrease, which would have a negative impact on our results of operations. A sustained weak LME aluminum pricing environment, deterioration in LME aluminum prices, or a decrease in regional premiums or product premiums could have a material, adverse effect on Alcoa's business, financial condition, and results of operations or cash flow.

**New LME warehousing rules could cause aluminum prices to decrease.**

In 2013, the LME announced new rules scheduled to take effect on April 1, 2014 that would require LME warehouses, under certain conditions, to deliver out more aluminum than they take in. Although in March 2014 a court in the United Kingdom ruled that the LME's consultation process in developing the new rules had been unfair and unlawful, if these rules (after appeal of the ruling or a revised consultation process) or similar new rules become effective, such rules could cause an increase in the supply of aluminum to enter the physical market and may cause regional delivery premiums, product premiums and LME aluminum prices to fall. Decreases in regional delivery and product premiums, decreases in LME aluminum prices and increases in the supply of aluminum could have a material adverse effect on Alcoa's business, financial condition, and results of operations or cash flow.

**A downgrade of Alcoa's credit ratings could limit Alcoa's ability to obtain future financing, increase its borrowing costs, increase the pricing of its credit facilities, adversely affect the market price of its securities, trigger letter of credit or other collateral postings, or otherwise impair its business, financial condition, and results of operations.**

Standard and Poor's Ratings Services currently rates Alcoa's long-term debt BBB-, the lowest level of investment grade rating, with a negative ratings outlook (ratings and outlook were affirmed on April 23, 2014). In May 2013, Moody's Investors Service downgraded Alcoa's long-term debt rating from Baa3 to Ba1, which is below investment grade, and changed the outlook from rating under review to stable. In April 2014, Fitch Ratings downgraded Alcoa's rating from BBB- to BB+, a below investment grade rating,

# EXHIBIT 78

**Written Statement of Jorge Vazquez**  
**Founder and Managing Director of HARBOR Aluminum Intelligence LLC**  
**to**  
**The Permanent Subcommittee on Investigations**  
**Hearing on**  
**“Wall Street Bank Involvement With Physical Commodities”**  
**November 18, 2014**

Chairman Mr. Levin, Ranking Member Mr. McCain and other members of the Subcommittee:

Thank you for your letter dated November 4, 2014 and for your invitation to provide my comments on seven specific areas related to aluminum warehousing in the United States and aluminum physical premiums.

*About HARBOR Aluminum Intelligence*

*HARBOR Aluminum Intelligence Unit LLC (HARBOR) is an independent, privately-owned research firm based in Austin, Texas, that specializes in the global aluminum industry and its various markets. We compile and develop aluminum industry intelligence and market insight, and provide consulting and expert advice to over 300 aluminum industry clients across the globe. We support a majority of the world's most important market players in the bauxite mining, alumina refining, aluminum smelting, metal trading, aluminum processing and end-user segments. Our clients include Alcoa, Rio Tinto Alcan, Emirates Global Aluminum, Constellium, Aleris, Mitsubishi, Sumitomo, Sapa, Coca-Cola, Tetra Pak, Hyundai and GE.*

Please find below my comments on each of the seven points you kindly invited me to address.

**1. The role and function of the London Metal Exchange (LME) and LME-approved warehouses in the aluminum market**

The LME has served as the world's premier metal trading exchange since it was formally created in 1877. The Exchange started its aluminum contract in 1978 and today provides the official aluminum base price for virtually all of the transactions taking place in the Western World. Within the LME, one can buy or sell aluminum contracts to be delivered on any specific day in the next three months, for every week in the next six months, and for every month in the next ten-plus years. All future contracts can be settled financially, or physically, using an LME warrant.

The LME provides the structure that allows all market participants to hedge (consumers, producers, traders, banks), speculate (CTAs, Hedge funds, Macro funds, Index funds), and discover price.

With its network of warehouses (today more than 700 around the world), the LME has historically functioned as a “market of last resort”— it can be tapped as a source of physical aluminum during times of shortage, or to deliver/store aluminum during times of over-supply. Today, the LME has primary aluminum inventories of 4.4 million metric tons (mton= 2,204.6 pounds), which represents over 16 percent of the world’s annual consumption, excluding China.

In my view, since 2010 the LME has partially failed as an effective “market of last resort” for the aluminum consumer (the manufacturers of aluminum semi-finished products). For example, HARBOR estimates that North America (US, Canada and Mexico) will end 2014 with a primary aluminum production shortfall of 2.4 million mton (about 39 percent of its annual consumption). Although today, LME warehouses in Detroit hold over 1 million mton of aluminum – which equates to 80 percent of the total LME metal stored in North America and 17 percent of annual consumption in the region – a consumer of aluminum who would like to turn to the LME as a market of last resort faces a load-out waiting time of 665 calendar days. This long waiting time and the capital requirements to source the metal out from the warehouse make it prohibitive for the consumer to use the LME as a viable source of last-resort supply. I can confirm this, based on my interaction with HARBOR’s aluminum semi-finished manufacturer customers. This situation has prevailed since 2010. Prior to that year waiting times averaged less than 2 weeks and consumers occasionally used the LME as a source of supply (more on this further below).

The LME attempted to address this problem on April 1, 2012, by implementing recommendations that doubled the minimum delivery-out rate from 1,500 mton to 3,000 mton per day. These changes affected LME warehouse companies all over the world if they were holding more than 900,000 tons of metal per location, as was the case in Detroit (which at the time stored over 1.4 million mton). However, raising the load-out minimum rate failed to stop the on-going concentration of metal in Detroit, and the ever-longer load-out queue. On July 1, 2013, the LME addressed the issue again and opened a consultation period on their proposal to make sure unprecedented load-out queues at the affected locations (Detroit included) were reverted to reasonable waiting times. This led to a new rule, announced November 7, 2013, that linked the load-in rate and load-out rate in such a way as to gradually reduce these historic waiting times to 50 days. LME has not yet been able to implement this rule, though they are on track to do so by February 2015. Currently, the load-out queue in LME Detroit stands at around 665 days.

## **2. The evolution of freight incentives offered by LME-approved warehouses in the United States since 2008, and the impact of those incentives on the aluminum market**

### *What are Warehouse Incentives*

As a matter of brief introduction, I would like to describe what a warehouse incentive is and why it is offered.

LME warehouses derive two main sources of income: (i) rental storage income, and (ii) Free On Truck charges (“FOT”). Warehouses charge metal owners daily storage rental fees. FOT is a charge to the metal owner when the metal is loaded out of the warehouse into the truck/vessel/rail car of the holder of the metal. Each year these charges are set by each individual warehouse company per location, notified to the LME, and implemented the first day of April. Today, the published daily rent in Detroit for *Metro International Trade Services LLC (Metro)* warehouses (where 80 percent of the LME aluminum metal in North America is stored) is 51 cent/ton per day (vs. what HARBOR estimates is the cost of storage: less than 7 cent/ton). The FOT charge is \$39.95 per mton (vs. what HARBOR estimates is the cost of operation: less than \$16 per mton).

Historically, it has been a standard practice for LME-approved warehouses to attract metal to their warehouses by offering financial incentives to producers and traders, known as “freight allowances” or “warehousing incentives” or “warehousing premiums.”



In principle, the higher the revenue a warehouse expects (from rental and FOT fees), the greater the incentive that warehouse can offer. Still, warehouses prefer to pay the smallest incentive possible to attract metal and thus maximize their profit.

Every LME-approved warehouse should follow the Exchange rules; probably chief among them is the minimum load-out rate. This is that every warehousing company must load-out at least a minimum amount of metal per location per day when there are requests from those holding warrants in the warehouse (known as warrant cancellations). In practice, LME warehouse companies usually treat the minimum load-out daily rate as a maximum daily load-out rate.

The load-out rate rule applies to all warehousing companies, regardless of how many warehouses they own in a location. For example, currently the minimum load-out rate for warehouses holding over 900,000 mton of metal is 3,000 mton/day. Consider this example: warehouse company A owns 10 warehouses in city X, while warehouse company B owns one warehouse in that same city; both are required to load-out the same total amount of metal in a day (3,000 mton). This means that company A (with ten warehouses) is required to load-out only 300 mton from each, while company B (with a single warehouse in this location/city) must load out the full rate (3,000 mton) from that one warehouse. You can see that this rule incentivizes warehousing companies to attract as much metal as possible in one location in order to reduce the required load-out amount as percentage of the total metal stored.

#### 2007-2008: The Emergence of a Market Surplus

In order to understand the evolution of warehouse incentives in the United States since 2008, it is important to keep in mind the state of the aluminum industry back then.

Demand for primary aluminum in North America and in the World collapsed in 2008 and 2009. Annual primary aluminum demand in the World excepting-China fell by 5 million mton or 20 percent between 2007 and 2009. Monthly aluminum demand in the US and Canada as measured by domestic mill shipments fell more than 36 percent between February 2007 and February 2009. As a result, domestic aluminum producers were suddenly left with no destination to sell a significant portion of their units. Smelters in the Northeast of Canada and the US took a material financial hit: they needed to make sales, move their inventory and generate revenue. They turned to the LME as a market of last resort. Smelters also sold to traders who in turn sold units to the LME and in some cases stored them in off-LME warehouses for financing purposes. Back in those years of financial crisis, the LME's role of market of last resort served smelters well and – faced with the lack of consumer demand at that time – prevented them from shutting down considerable operating capacity.

Detroit has railroad lines, is near a water port, and has become a logistical hub where 30 percent of the trade between Canada and the US takes place. Detroit is also one of the two LME warehouse locations close to the Northeast Canadian aluminum smelters. *Metro* was by far the largest and only dominant LME warehousing company in Detroit. Baltimore is the other LME location in proximity not only to the Northeast Canadian aluminum smelters but also to the US Northeast aluminum smelters. As contrasted to Detroit, Baltimore's LME warehouse market share was split among several warehousing companies.

With unprecedented weakness in demand, primary aluminum inventories soared. LME Detroit went from 15,000 mton in early 2007 to 342,925 mton by the end of April of 2009. In the same period, LME Baltimore which had several warehouse companies, saw inventories climb from 58,000 mton to 350,000 mton. HARBOR estimates that traders/banks stored another 1,000,000 mton in off-LME warehouses during the same period.

There is no public data on warehouse incentives, which are negotiated privately between LME warehouse operators and producers/traders. However, HARBOR's field intelligence allows us to estimate that warehouse incentives in both Detroit and Baltimore fluctuated in the 2007-2008 period between 0.5 and 2.0 cent/lb. This

equated to 1.0-1.5 cent/lb less than the market premium in the Midwest consuming areas (Midwest premium). Warehouses didn't need to pay much incentive to attract the metal because producers had no home for a large volume of their units, and also because warehouses were paying cash and smelters were saving on freight by shipping to warehouses (I will explain this in more detail below).

### 2009-2013: A Critical Mass of Metal and Effects

As a result of the aluminum market surplus generated, by January 2009, LME Detroit (*Metro*) had accumulated 342,000 mton of primary aluminum in its warehouses. LME Baltimore had similar volumes, but the aluminum was spread among several warehouse companies, which meant each warehouse company held a fraction of what *Metro* had. Given the minimum load-out rate of 1,500 mton per business day that was in force at the time and the 342,000 mton of metal stored in its warehouses, *Metro* had at least 570 calendar days of guaranteed rent/revenue for each additional mton unit it managed to attract. This was dramatically more revenue and capacity to pay warehouse incentives than any other warehouse company in North America. This disparity gave *Metro* three things: the ability to offer more attractive warehouse incentives than its competitors in other locations, b) the ability to pay above-market premiums that consumers were paying (Midwest premium), and c) the start of a self-feeding cycle that allowed the company to permanently increase the metal stored in its warehouses.

In other words, by January 2009, LME Detroit had amassed a critical mass of metal. The unprecedented market surplus was one important factor contributing to this critical mass, but so was the minimum load-out rate which was small relative to the volume and concentration of the metal, as well as the dominance of one warehousing company in this location (*Metro*).

Sitting on this critical mass of aluminum and able to outbid warehousing competitors and consumers, in December 2009 LME Detroit became the world's largest LME location of stored aluminum, with more than 800,000 mton of metal. Aluminum stocks stored in LME Detroit continued to increase for the next 3 years eventually reaching a peak of 1.56 million mton in December 2013. In the meantime, North America experienced a strong bounce in aluminum demand and a growing annual deficit of primary aluminum, which eventually reached 1.5 million tons in 2013 (about half this deficit was commodity ingot).

LME Detroit's critical mass gave smelters additional benefits that incentivized smelters to continue shipping their metal to Detroit despite the growing consumer demand and regional production shortfall. These were:

(a) Cheaper railroad rates. The big volumes traveling *Metro* warehouses in Detroit gave smelters/traders a favored position (economies of scale) in negotiating rail rates that saved them 1-2 cent/lb off the prevailing standard rate vs. diluting those volumes among several plant locations in the Midwest consumer area; b) Cash payments. Warehouses pay cash while selling to consumers typically involves a 30-day wait for payment; c) No credit risk. Selling cash to warehouses shielded the smelter from the risk of default, which smelters faced when selling to consumers; d) Reliable demand. The warehouse provided a steady demand flow, compared to the irregular demand from consumers; e) Flexibility on delivery deadlines. Consumers have tight schedules, whereas the warehouses don't require strict delivery deadlines, which smelters/traders usually leverage into contango profits; and f) Flexibility on metal purity. Smelters were able to ship metal with trace elements such as Lithium (used to increase purity) that some aluminum consumers wouldn't accept.

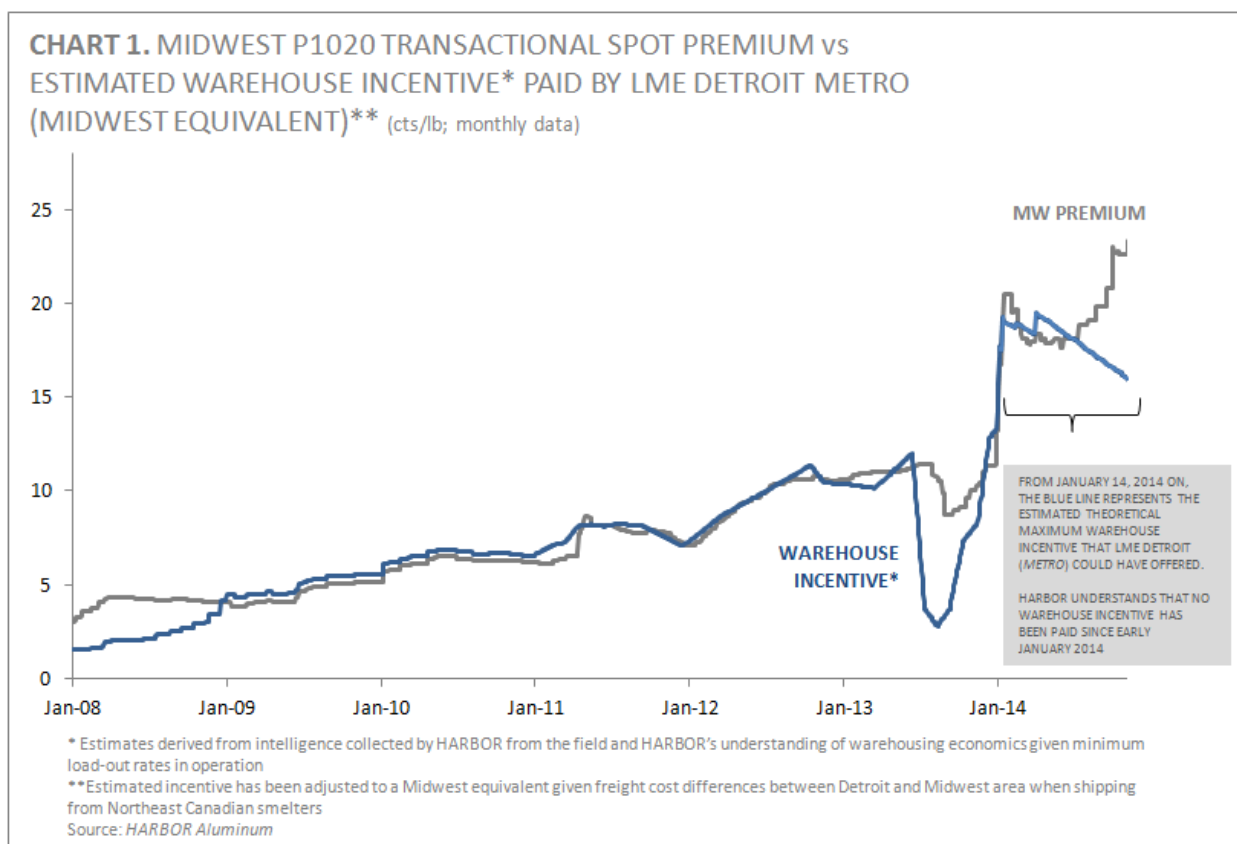
As a result of the above – LME Detroit's leverage benefits and the growing regional deficit of aluminum -- LME stocks in Detroit increased while other LME locations in the region declined.

In February 2010, after LME Detroit's critical mass and dominance position was well established, *Goldman Sachs* (GS) acquired *Metro*. This purchase made sense, in my view, not only because of the unprecedented benefits of the unique business model that *Metro* possessed, but also because ownership gave GS the ability to potentially realize a considerable profit on any off-warrant aluminum position that the company decided to ship to *Metro*.

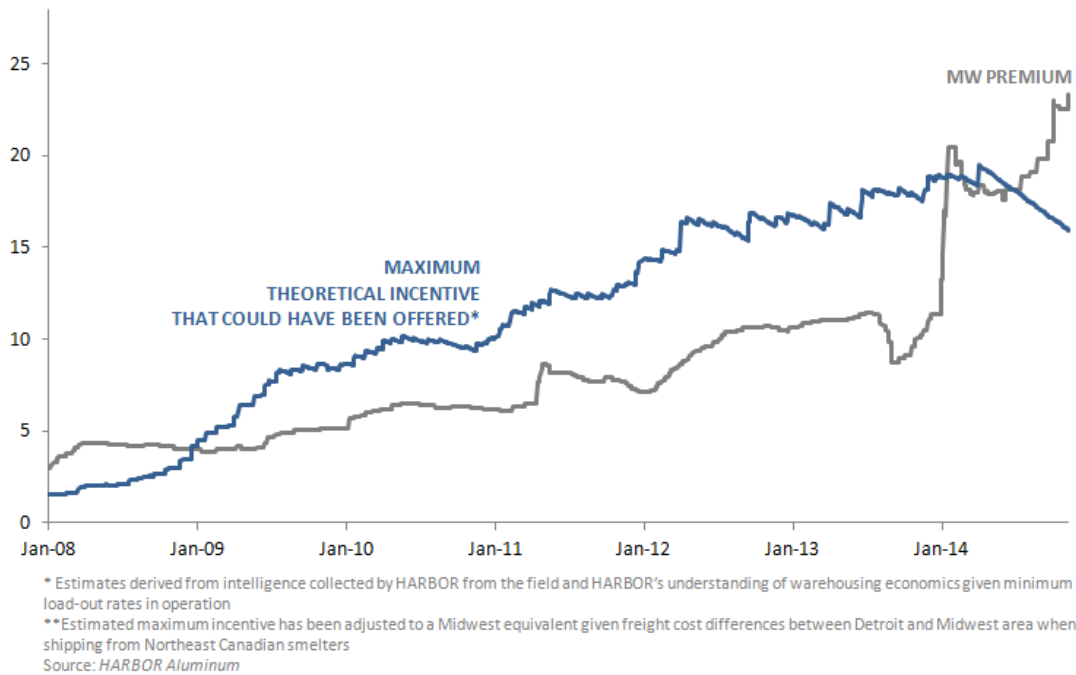
This worked because *Metro* had to comply with a relatively limited load-out rate as described earlier. Any off-warrant metal that *GS* had then or could potentially obtain could be converted to warrants and these in turn could be sold to another market participant, who would then be required to pay rental fees and income for at least more than 70 days (queue length back then). In February 2010, this overall benefit (warehouse incentive and/or internalization of storage/FOT profit) came to at least 3 cent/lb above the market premiums rates at that time. In other words, moving metal stored in an off-LME warehouse to *Metro*, gave *GS* an automatic theoretical 3 cent/lb minimum profit (that was reasonably expected to increase with any additional lengthening of the queue).

In this context, **Chart 1** shows HARBOR's estimates of the warehouse incentives paid in LME Detroit, compared to the Midwest premium from 2008 to 2014. **Chart 2** shows what HARBOR estimates was the maximum warehouse incentive that LME Detroit had the capacity to pay (without losing money) for each additional deal. These estimates are based on field intelligence and HARBOR's research on warehousing economics.

As I will explain further below, I do not believe that warehouse incentives *per se* have been the main driver of the notorious increase in market premiums that has taken place in North America, particularly since early 2011. Instead, these higher market premiums have been mainly a function of the lengthening of queue at this location that resulted from *Metro's* critical mass and the limited mandatory minimum load-out rate. As shown below, warehouse incentives moved up from about 1 cent/lb (\$22 per mton) in early 2008 to over 18.0 cent/lb (\$395 per mton) by early 2014.



**CHART 2. MIDWEST P1020 TRANSACTIONAL SPOT PREMIUM vs ESTIMATED MAXIMUM WAREHOUSE INCENTIVE THAT COULD HAVE BEEN OFFERED BY METRO DETROIT LME\* (MIDWEST EQUIVALENT)\*\* (cts/lb; daily data)**



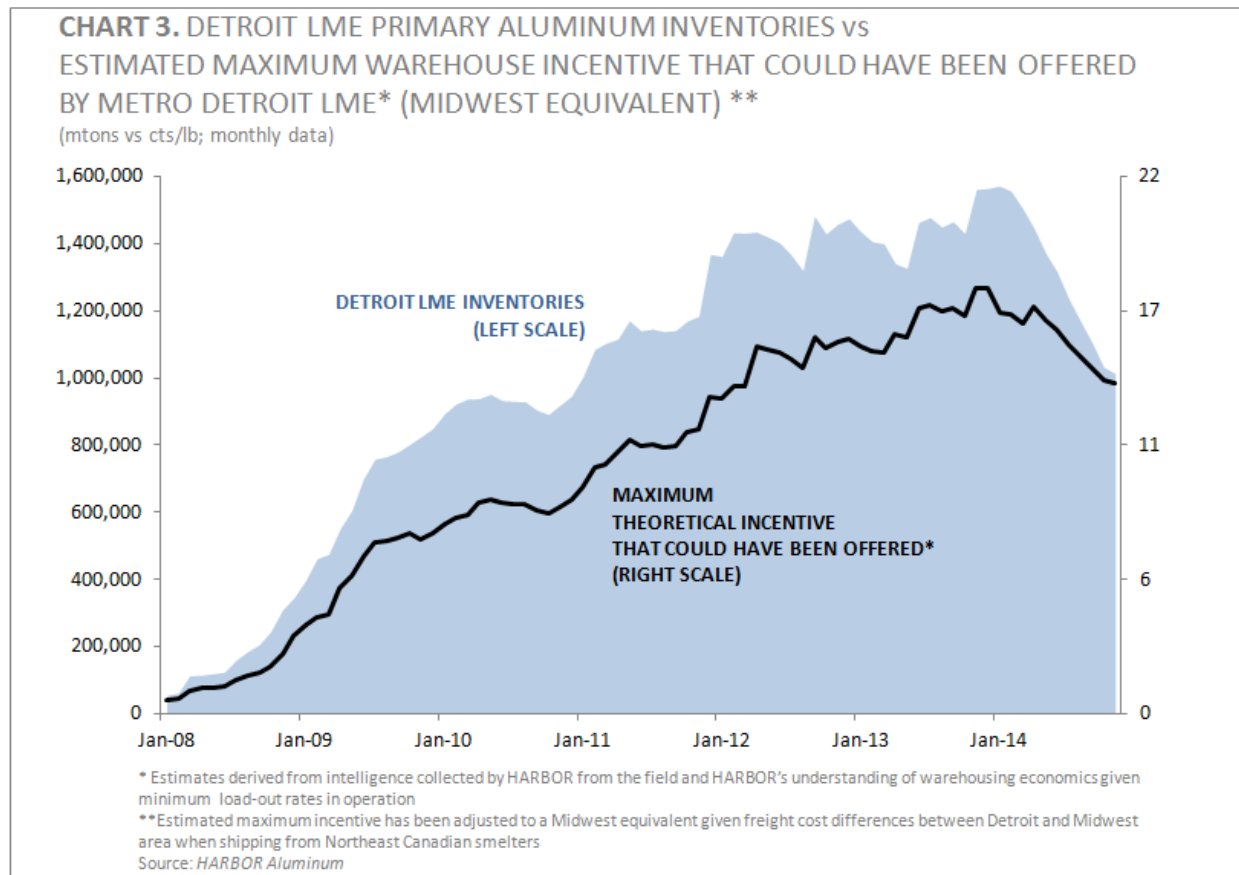
#### 2014: No Longer Capturing Metal and Offering Warehouse Incentives

From June 2009 to early January 2014, *Metro* warehouses managed to capture metal units in spite of the growing market deficit in the region, thanks to its critical mass position and its ability to outbid competing warehouses and consumers of the metal. However, by January 20, 2014, LME Detroit had lost this critical mass condition, and the benefits associated with it. The reasons for this were: a) Production of commodity ingot in the Northeast portions of Canada and the US declined materially. A portion of production was curtailed in favor of Value Added Products (VAP's) such as billet, slab or PFA, while another portion was exported to Europe and Brazil; b) Off-LME stocks kept falling in North America because of the regional market deficit and the volumes previously channeled to LME Detroit; and c) After the LME implemented the new minimum load-out rate in April 2012, LME Detroit was required to load-out at least 3,000 mton per business day.

In other words, the metal units generated by the Northeast Canadian and US smelters fell from an equivalent of 2,780 mton per business day in 2009 to fewer than 2,000 mton in 2014. This meant a drain for *Metro* considering that the load-out rate increased to 3,000 mton.

Indeed, as shown in **Chart 3**, it wasn't until January 2014 that the volumes LME Detroit was capturing finally fell short of what LME Detroit (*Metro*) needed in order to be able to offer a competitive warehouse incentive. From that point on, LME stocks in Detroit started to decline non-stop. Now LME Detroit found itself in a self-feeding cycle, where declining stocks meant an on-going reduction in the maximum warehouse incentive it could offer to attract metal, which in turn fell increasingly short of market premiums. From January's inventory peak to date,

aluminum stocks in LME Detroit have fallen over 500,000 mton to 1.0 million tons. This is a 3.5-year low. I expect inventories of aluminum in LME Detroit to continue to fall further as this cycle feeds on itself.



Please note that while LME Detroit (*Metro*) basically stopped offering warehouse incentives in January 2014, market premiums have continued to rise. This further supports the assertion that warehouse incentives *per se* were not the main driver behind the unprecedented increase in market premiums.

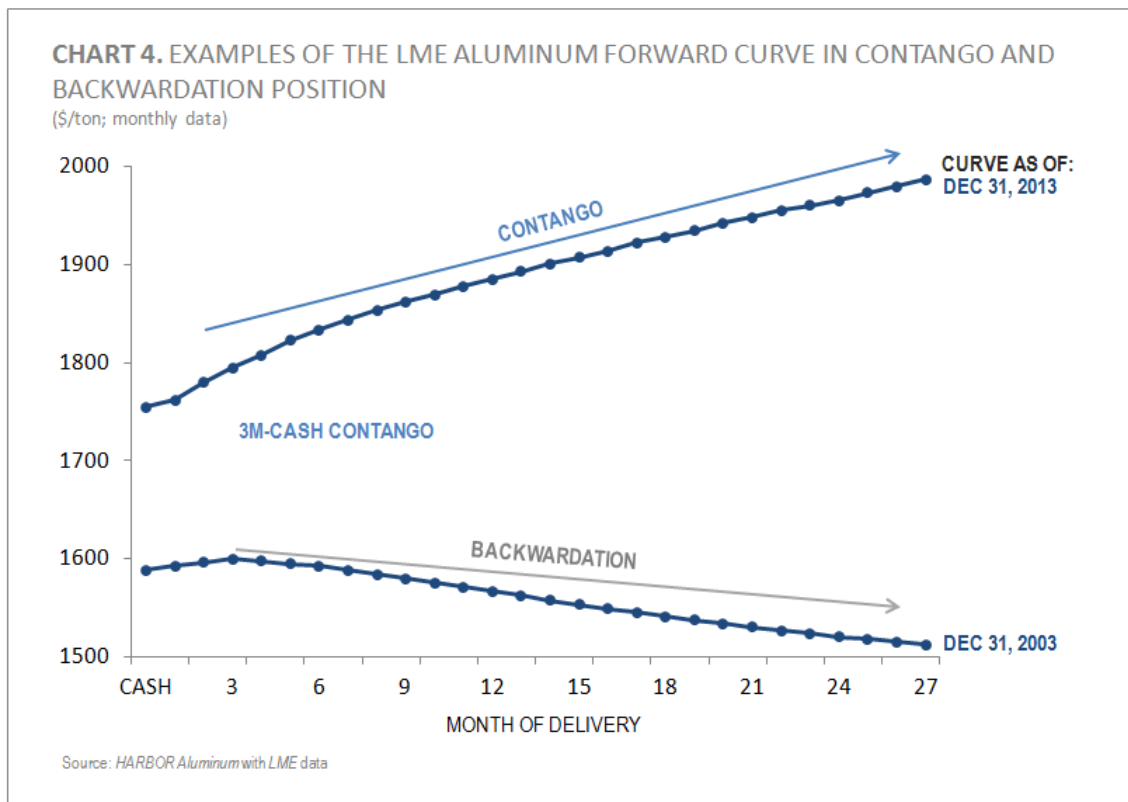
### 3. The growth of the queue at the Detroit warehouses owned by *Metro International Trade Services*, including the role of large cancellations of LME warrants for aluminum

Before I address cancellations and queue developments in LME Detroit (*Metro*), I would like to explain some essential terms and concepts: contango/backwardation, a financing deal, and load-out queue.

#### "Contango" and "Financing Deal" Concepts

The market is said to be in *contango* when the price of aluminum that is scheduled for future delivery trades above the spot price. Conversely, the market is said to be in *backwardation* when the spot price trades above the future price. Historically, the LME aluminum market's natural state is to be in contango. The 3M-cash price spread (that is,

the difference between the price for delivery of a warrant in 3 months' time and the spot price of a warrant) is one of the most common reference points in the market, where backwardations arise only occasionally. Only once in every 40 weeks (on average) do backwardations emerge in the 3M-cash spread, and even then they usually last less than a week. Backwardations occur when the demand for a particular contract (spot or future contract) outpaces supply, forcing the buyer to pay a premium (relative to other contracts in the forward curve) in order to get it. **Chart 4** below shows what a contango and backwardation look like.



*Cash and carry* is the cost of holding aluminum stocks. This is the sum of storage, finance and insurance costs that a market participant incurs in the storing of aluminum.

Market participants can profit from a contango when it is wide enough to cover (or exceed) the cost of carry. This means that a market participant can profit from the contango if he buys physical aluminum (from a producer/trader or a warrant on the LME) and simultaneously sells it in the futures market at a price that is high enough above the spot price to cover the full cost of carry (storage, cost of capital and insurance).

Profiting from the contango is also known as "profiting from borrowing," "cash and carry trading," or doing a "financial deal".

Finance deals can last anywhere from one day to a period of years. The bulk of financing deals today are done for three months or for 1-2 years. Financing deals can be (and often are) rolled over when the deal is scheduled to expire but the contango is wide enough for the financier to do another financing deal and still make a profit.

### What and Why a Load-out Queue

A load-out queue in an LME location begins when the amount of metal held by one warehousing company (at that location) for which warrants have been cancelled (ear-marked to leave the warehouse) exceeds the LME-mandated minimum daily load-out rate. For example, if warehousing company A is holding over 900,000 mton in one location and 60,000 mton of metal is cancelled, a queue of 20 business days (28 calendar days) will be formed because of the 3,000 mton daily load-out rate. The more metal that is cancelled, the lengthier the queue will be. This assumes that the warehouse treats the minimum load-out rate as a maximum and doesn't load out a greater volume of metal each day.

### Evolution of the Load-out Queue

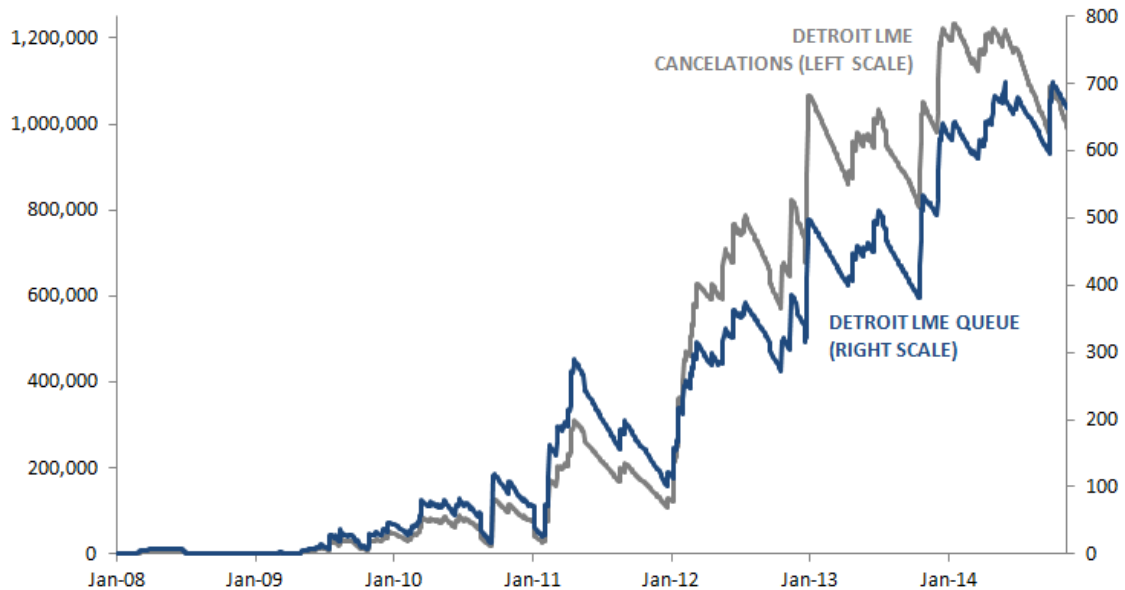
As mentioned above, by June 2009 *Metro* had a critical mass of metal stored in its warehouses. There were at that time cancelled warrants for only 11,275 mton, less than 2% of the 600,000 tons that LME Detroit actually had on hand, and equivalent to only 11 days of queue... When *GS* acquired *Metro* in March 2010, LME Detroit had 45,000 mton in cancelled warrants, 4.9% of total stocks at that time and the equivalent of 44 days of queue (still considered an acceptable waiting time).

Five months later after *GS* acquired *Metro* (LME Detroit), in September 2010, the company started to experience on-going massive cancellations of metal, which stretched the load-out queue to unprecedented waiting times.

Here is the count of these massive cancellations and their impact on the load-out queue in Detroit: Between September 17-20, 2010 (2 business days), over 102,000 mton of metal were cancelled, lengthening the load-out queue from 24 to 116 days. Between February 11 and 14, 2011 (also two business days) another 97,925 mton were cancelled, which drove waiting time to 162 days. Additional cancellations in April 2011 (102,000 mton) drove the queue to 289 days. Cancellations in the January-July 2012 period (826,000 mton) lengthened the queue to 368 days. Cancellations between December 24 and 28, 2012 of 378,875 mton further lengthened the queue to 498 days. Cancellations during December 2013 of 251,400 mton lengthened the queue to 641 days. Cancellations during May 2014 of 33,025 mton lengthened the queue to a new high of 702 days. Today, 98 percent of the 992,900 mton of metal stored in LME Detroit remains in a queue with a waiting time of 665 days. Please see **Chart 5** below.

**CHART 5. LME DETROIT PRIMARY ALUMINUM CANCELLED WARRANTS vs ESTIMATED LME LOAD OUT QUEUE IN LME METRO DETROIT\***

(mtons vs days; daily data)



\*HARBOR's estimate

Source: HARBOR Aluminum and LME data for Detroit cancellations and data for queues for the last day of each month from April 2014 to date

#### Drivers behind Cancellations and the Resulting Waiting Times

As explained above, after GS acquired *Metro*, there were unprecedented cancellations of metal resulting in an ongoing lengthening of the load-out queue.

HARBOR's intelligence indicates that most of these cancellations were made by a handful of large financial institutions and at least one trading company (backed by financial institution) that: a) had access to ample and cheap credit (at about a fourth of the cost that a typical aluminum manufacturer must bear), b) probably held aluminum stocks outside the LME system, c) are savvy and sophisticated in trading the LME market, and d) own or have access to low cost non-LME warehouses.

It is my view that these players bought, and then cancelled LME warrants (probably paying a very small premium fee, if any, to the previous warrant holder) because:

- a) They believed that *Metro's* critical mass of metal (ability to capture units away from the market when demand and regional tightness was growing) had established a firm floor (safety net) in market premiums and warehousing incentives, and a cycle of metal attraction to reinforce it.
- b) By cancelling warrants and consequently lengthening the queue, the marginal cost of sourcing any additional metal out of the LME would increase automatically (and pressure market premiums upward as I will discuss below), compared to the average cost they would incur by cancelling the metal. This guaranteed a nearly automatic profit.



For example, consider September 20, 2010. On that day 98,500 mton of metal were cancelled and the queue lengthened from 24 to 116 days. Assuming the cancellation was made by a financial institution, the average cost of sourcing that metal (at full retail storage rates and FOT cost + the cost of financing, less the contango credit) was about 3.1 cent/lb. Sourcing the next mton of metal out of LME Detroit (given the then-116 day queue) implied a minimum cost of 6.8 cent/lb if another player wanted to do the sourcing. This virtually ensured an automatic profit for the party canceling the metal of at least 3.7 cent/lb.

c) By cancelling warrants, these players could expect to amplify the cash-and-carry profit that the existing contango offered, if once the metal out of the LME warehouse, the company stored it in a non-LME warehouse (where retail storage costs are a tenth the cost of LME warehouses).

d) These cancellations would increase the market premium and benefit the mark-to-market valuation (a.k.a. the premium value) of any metal position that was stored in the LME but not cancelled, stored in a non-LME warehouse, and any metal in transit. The increase in the market premium could also boost the value of any metal produced at a smelter (primary aluminum producing company) in which the player who did the cancelling might have shares in.

In other words, with access to ample credit and very low interest rates, these large financial institutions/traders could cancel the metal and, because of the critical mass of metal and the limited load-out rate, ensure themselves of a profit with very little risk.

#### **4. The relationship between warehouse queues and the LME and Midwest Premium prices for aluminum**

##### *What is the Midwest Premium?*

A physical premium is the additional price paid by a buyer of primary aluminum on top of the LME price. This premium is paid to cover the costs of delivering metal to a buyer's plant/warehouse. The physical premium thus reflects the full logistical cost of delivering metal. This includes freight, insurance, storage, loading/unloading, duty, and cost of financing.

Throughout the world, every major region in the aluminum market has a benchmark premium that reflects the logistical cost applicable to that region. The most important benchmark regional premium in North America is the Midwest premium. Buyers and sellers in North America use this reference premium when negotiating the actual premium to be paid for the supply of physical aluminum. The higher the logistical cost associated with delivering metal (comprising distance, diesel price, ocean rate, finance cost, time, storage rate), the higher the premium.

Again, physical premiums are negotiated bilaterally between buyers and sellers independently of the LME price, and the parties are under no obligation to reveal the agreed-upon premiums to the public. Nonetheless, data providers (such as *Platts*, *Metal Bulletin*, and *HARBOR*) gather this information through voluntary reporting.

It is important to note that in North America, around 75 percent of the negotiated premiums are done on an annual contract basis, and the remainder on the spot market. Premium negotiations can be based on a formula that is referenced to a reported spot premium assessment like the one done by *Platts* or negotiated on a fixed number (i.e. 7 cent/lb). Since premium data providers only consider spot premium transactions based on a fixed number, the spot premiums that these companies publish are based on a small amount of metal, relative to the size of market.

The delivered price paid in North America by end-users for a supply of primary aluminum from smelters and/or traders, is thus typically the LME price plus a physical premium (Midwest premium) paid to deliver the metal to the buyer's plant/warehouse.

#### *What in Reality Determines Market Premiums*

Historical evidence demonstrates that primary aluminum premiums ultimately reflect the full logistical cost of obtaining metal. Regional supply-and-demand factors can temporarily affect the regional premium. An example of this was January and February of this year, when the harsh winter materially reduced the supply of aluminum scrap (thus increasing the demand for prompt primary aluminum), which in turn drove market premiums temporarily above the marginal logistical cost of moving the metal. Permanent changes to the premium occur only when regional supply-and-demand factors change the logistical cost of obtaining metal.

For example, consider the typical consumer of primary aluminum. These are aluminum extruders, rollers, castings and wire and cable producers with casthouse capabilities. These consumers have basically three options when sourcing aluminum. They can:

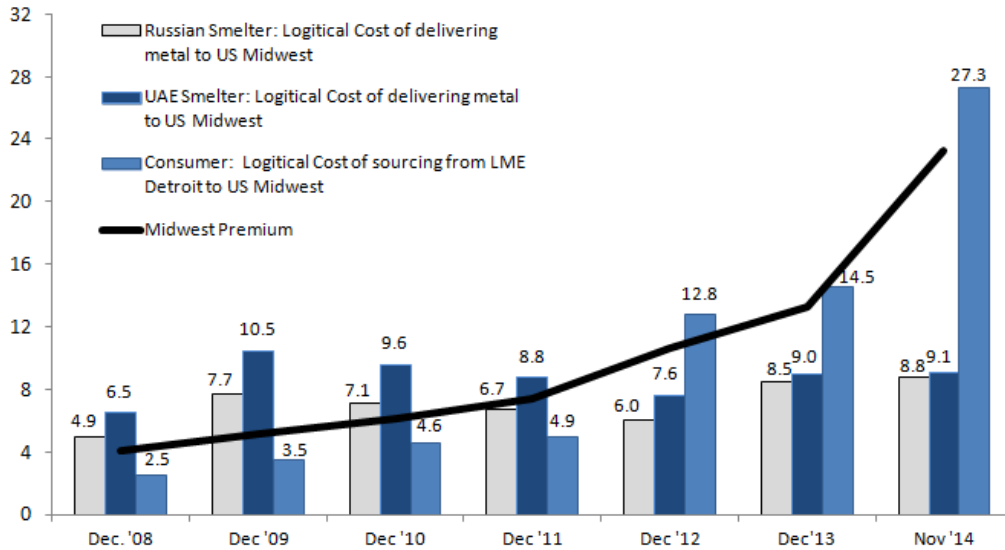
- a) Source the metal from a smelter (local or foreign),
- b) Source the metal from a trader (local or foreign), or
- c) Source the metal from the LME (established as a market of last resort).

In reality, the cost of sourcing metal from the LME (after considering rent, queue length, FOT, finance cost and freight from warehouse to plant) has always operated as a backup for the consumer. It is economically irrational for a consumer to pay a smelter and/or trader a physical premium greater than the cost to that consumer of sourcing the metal itself from an LME warehouse (except when the consumer has an urgent and unexpected need for metal and must source from the nearest supplier, irrespective of cost). The cost of sourcing metal directly from the LME warehouse provides an important point of reference and leverage when negotiating with the smelter and trader. As a result, the consumer almost always gets a better deal from the smelter or trader than they would get directly from the LME. That is why consumers are not found in the queue. It is financial institutions and large trading companies that populate the queue because their cost of capital is a fraction of the cost of the consumer. Thus, the lower the cost associated with sourcing metal out from the LME warehouse, the lower the reference point consumers have to negotiate premiums with smelters and traders, the lower the market premium. The higher the cost associated with sourcing metal from the LME warehouse, ultimately the higher the market premium. In this respect, the longer the queue to load out metal from a dominant warehouse like LME Detroit, the higher the associated cost to source the metal and, inevitably, the higher the premium.

**Chart 6** below shows the logistical cost trend of sourcing metal from Russian smelters, Middle East smelters and LME Detroit (which together are the main suppliers of metal to North America). As can be seen, since 2009 the logistical costs of sourcing metal from Russia or the Middle East has remained stable between 6.0-10.5 cent/lb, while the cost of sourcing metal from LME Detroit has risen more than 1,000 percent from 2.5 cent/lb in 2007 to 27.3 cent/lb today. As the cost of sourcing metal from LME Detroit skyrocketed, so did the reference point for consumers to negotiate with and so did market premiums. As a result, the Midwest premium has increased from 2.5 cent/lb in December 2008 to more than 23 cent/lb today.

**CHART 6. TOTAL LOGISTICAL\* COST OF SOURCING METAL FACED BY THE NORTH AMERICAN CONSUMER**

(cent/lb; end of month data)

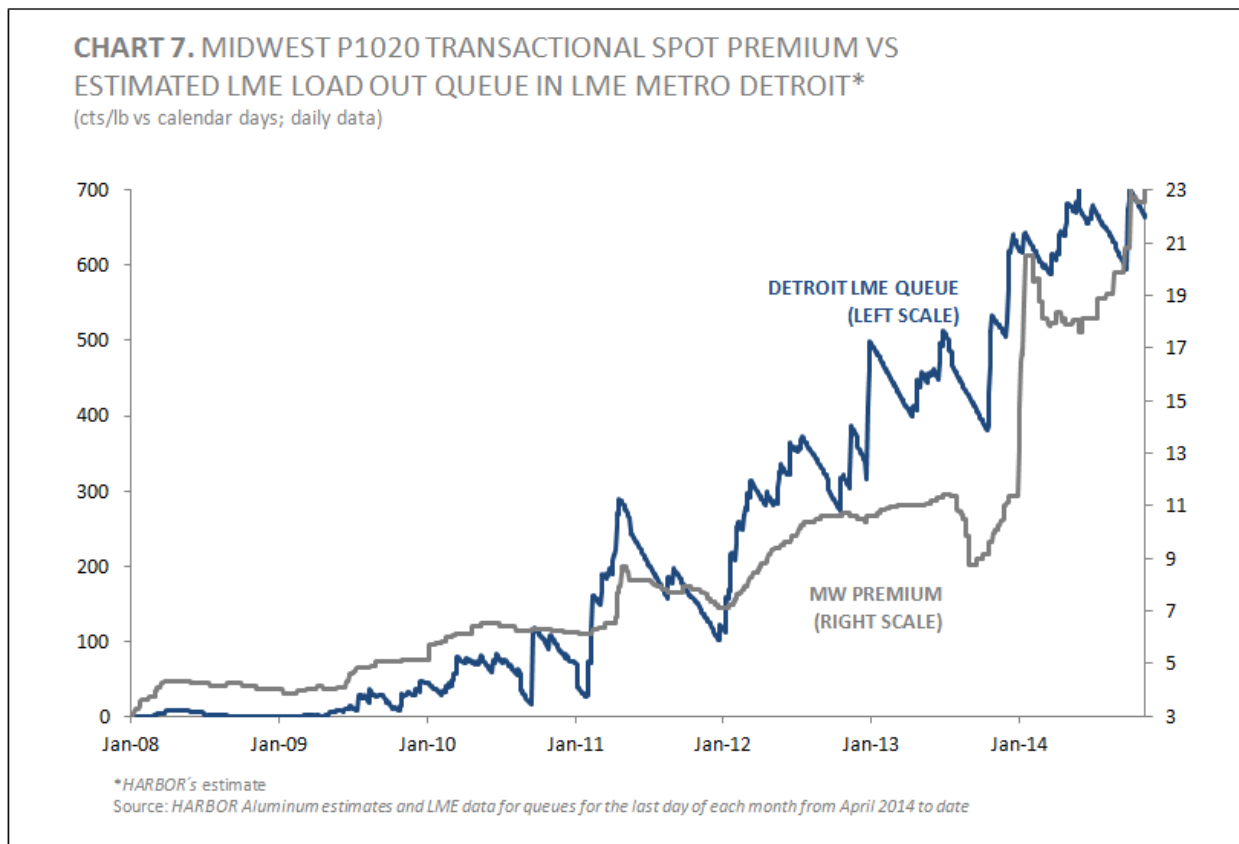


Source: HARBOR Aluminum

\*Includes costs such as storage, load-out/load-in, total freight, finance cost. It also includes a credit obtained by market contango when sourcing metal out of the LME.

Indeed, HARBOR's mathematical studies confirm that the lengthening of the queue in LME Detroit (*Metro*) has been the main driver behind the unprecedented increase in Midwest premiums. Our work also shows that movements in cancellations/queues in LME Detroit can take as long as 5-7 months before their full impact is felt on market premiums.

**Chart 7** below shows how the lengthening of the queue in Detroit from zero to 702 days has impacted market premiums.



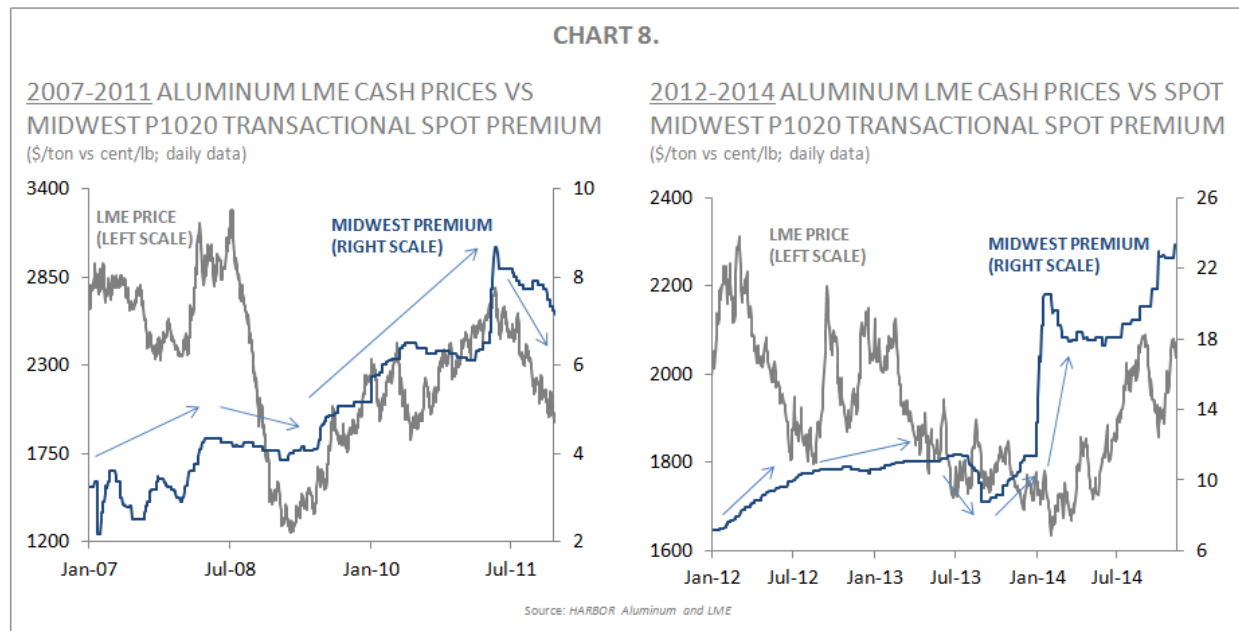
### The All-In Price Theory

I am aware of the "all-in price" theory that circulates in the market today. The theory states that the price of an LME warrant is derived from the all-in physical metal price that is established outside the Exchange, such that any artificial rise in market premiums is offset by a discount in the price of an LME warrant (LME price).

I have not seen any serious analyses or empirical evidence that supports this theory. In my view, this notion has a logical conceptual explanation, but does not reflect how the physical aluminum market actually works. On the contrary, evidence that I have analyzed at HARBOR indicates that LME price and market premiums (Midwest premium included) have historically moved together in the same direction most of the time (reflecting demand trends and the economic cycle), not in opposite directions.

LME prices are determined day-to-day by the interplay of financial and physical demand that takes place in the Exchange. The physical market first references its base price from the LME price and then adds the physical premium that buyers and sellers negotiate outside the Exchange.

**Chart 8** below shows the day-to-day relationship between LME prices and Midwest premiums.



## 5. The impact of warehouse queues on the aluminum market generally and on consumer prices, the ability of consumers to hedge aluminum-related price risks, and the role of the LME as a market of last resort

As explained, HARBOR's empirical work and experience is consistent with the idea that there is causality that links load-out queue length (cost of sourcing metal from the LME which is the ultimate "backup" of the buyer) and premiums. In the case of North America, this means a link between the load-out queue in Detroit (*Metro*) and the Midwest premium. It is thus my conclusion that cancelled warrants and the lengthening of queues in Detroit are the main drivers behind today's unprecedented Midwest premiums.

Higher premiums negatively impact end-users financially. Considering the evolution of the full logistical cost of sourcing metal from Russia and the Middle East to the US Midwest region, HARBOR estimates that the effect of lengthening queues in market premiums has cost the US consumer an accumulated sum of at least \$3.5 Billion USD since 2011. This estimate considers primary and scrap aluminum consumption volumes in the US, and assumes scrap prices have 50 percent elasticity to changes in the Midwest premium.

End-users cannot effectively hedge against Midwest premium variations because the derivative market is neither liquid nor transparent enough for them to hedge properly. Historically, hedging was not a problem because the premium had (compared with the LME price) either remained static or was subject to very marginal increases and/or decreases. Through the end of 2010, Midwest premiums traded mainly between 2-7 cent/lb and averaged between 2-8 percent of the all-in price (LME+ Midwest premium). Today, the Midwest premium stands between 23.0-24.0 cent/lb, which represents slightly more than 20 percent of the all-in price of aluminum. Consumers have been complaining in public about the increased prices they are paying. Their complaints explicitly target queues and the effect of those queues on market premiums.

Talking with numerous aluminum end-users that are HARBOR's clients, I estimate that more than 80 percent of them don't or can't hedge market premiums. The other 20 percent who do hedge do so for only a portion of their metal needs, and usually for only one or two quarters out (a result of illiquidity, lack of transparency, and the prevailing uncertainty of where premiums are headed). Market liquidity is improving somewhat with the emergence of derivative products such as those offered by the *Chicago Mercantile Exchange (Aluminum MW US Transaction Premium and North American Aluminum Futures Contract)*. However, it remains to be seen how successful these new contracts will be in providing the much needed liquidity to the market.

**6. Warehouse transactions where an incentive is paid to a warehouse customer to wait in the queue and ship large amounts of aluminum out of one warehouse and into another warehouse owned by the same company in the same city**

As explained above, paying warehouse incentives to attract metal is a standard and historical practice in the LME warehousing business. What is certainly not a common practice, however, is when LME warehouse operators offer and pay an incentive to warehouse customers to cancel metal and wait in the queue. That practice poses a serious conflict of interest because incentivizing the lengthening of load-out queues can materially impact market prices (Midwest premium).

**7. Warehouse transactions that link warehouse revenues to the market price for aluminum**

To my knowledge, it has never been a standard practice in the LME warehousing business to link warehouse revenues (rent, FOT, penalties for breaking a warehouse deal, etc.) to a market price of aluminum such as physical market premium. Again, this could pose a conflict of interest for the warehouse, especially when the link has the effect of indirectly trading market premiums.